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ABSTRACT

Intended primarily for directors of occupational education in large cities, this document presents suggested guidelines for the development of a comprehensive occupational education system (COES) based upon the COER (Comprehensive Occupation Education Research) Project model developed in New York City. After describing the background, objectives, and implementation of the COER Project and briefly explaining the systems approach to planning, the recommended action steps for planning such a system are presented under the following twelve major divisions: a comprehensive occupational education plan for a major metropolitan area; occupational education and labor market needs; curriculum development; coordination--involvement, business, industry, labor, the community; public attitudes; vocational guidance, counseling, placement and follow-up; personnel development; articulation; monitoring and evaluation; remediation; handicapped and bilingual; and planning alternative facilities for comprehensive occupational education: a career development center. Finally, guidelines for planning a career development center facility are presented. (BM)

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A COMPREHENSIVE OCCUPATIONAL EDUCATION SYSTEM

RESEARCH AND EXPERIMENTATION IN A CAREER DEVELOPMENT CENTER

VOLUME I

PLANNING A COMPREHENSIVE OCCUPATIONAL EDUCATION SYSTEM FOR A MAJOR METROPOLITAN AREA

New York City Board of Education
Division of Educational Planning and Support
Center for Career and Occupational Education
George R. Quarles, Chief Administrator

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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August 30, 1977

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CE 013 383

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LIST OF ABBREVIATIONS

BOCES	Board of Cooperative Educational Services
CETA	Comprehensive Employment and Training Act
CDC	Career Development Center
COER	Comprehensive Occupational Education Research Project
CUNY	City University of New York
ERIC	Educational Research Information Center
VEA	Vocational Education Amendments

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This document was developed as a product of the U. S. Office of Education funded Part C (VEA) research project: "Plan for a Comprehensive Occupational Education System in New York City—Research and Experimentation in a Career Development Center." It is intended primarily as a suggested guide to Directors of occupational education in large cities seeking to develop a comprehensive occupational education system. A companion document presents the results of the project's research on the development of such a system in New York City, and specifically in the Borough of the Bronx.

In effecting this Comprehensive Occupation Research (COER) Project, the Center for Career and Occupational Education is indebted to Dr. Jack A. Wilson, USOE Project Officer, for his interest and guidance; to Dr. Peter J. Mollo, Project Director, and other members of the COER staff for their dedicated efforts; and to the National Panel of Consultants who, under the chairmanship of Dr. Robert M. Worthington, contributed significantly to the Project from their wealth of experiences.

The Center is also appreciative of the efforts of the many individuals of New York City, including representatives of business and industry, education and community organizations, who have shared generously of their time and ideas in the implementation of the Project.

Finally, the assistance provided by staff of the Center for Career and Occupational Education, and their associates in other Centers of the Division of Educational Planning and Support, is acknowledged with gratitude.

George R. Quarles
Chief Administrator
Center for Career and Occupational Education

PHILOSOPHY STATEMENT

In order to provide a comprehensive occupational education program for major metropolitan areas in the 1980's, it is essential that educational policy makers, administrators, and classroom teachers reach a consensus on a philosophy of occupational education. Most urban school districts have made known their philosophy of occupational education through the kinds of programs and delivery systems that have evolved. It is often difficult, if not impossible, to identify a specific statement that has been published as a philosophy. The following statement, therefore, represents an attempt to put together from many sources an eclectic philosophy of occupational education applicable to the great cities of America.

All individuals should have available to them programs of occupational education which will facilitate decision making about future careers. Persons of all ages should be provided with opportunities which will foster their personal career development. Such career development activities should develop understandings of the world of work and should provide for occupational awareness, occupation exploration, preparation for employment and job progression. These concepts are entirely consistent with the views of the Regents of the University of the State of New York as published in a position paper (No. 11) in 1971 (Attachment A).

Every individual should have an opportunity to develop positive attitudes about the social significance of work and should be provided with experience which will develop and expand occupational aspirations. Educational programs should be provided which will make it possible for every individual to evaluate interest, aptitudes and personal needs related to broad occupational goals.

Every individual should have access to quality programs of occupational education designed to provide skills and knowledge necessary to enter and progress in recognized occupations and/or in advanced educational programs. Access to such programs should not require commitment to participation in an extended sequence of programs but rather, open entry into specific training modules that can provide specific skills for employment or continuing education consistent with the individual's needs and capabilities. Career counseling and placement services should be available to anyone regardless of the time of their entry or exit from occupational education.

There should be recognition by the educational system that all students will not be able to complete a long-term sequence of training programs that would provide a wide spectrum of skills for a given occupation. However, it should also be recognized that the system does have the responsibility of providing each individual with sufficient skills for employment and of assisting these individuals in continuation of their training when such training is consistent with the individual's needs and interests.

Finally, it should be recognized that the education system needs to bring together all the facilities and resources of the geographic area to create comprehensiveness in its programs and services.

PREFACE

America's great cities are faced with serious problems. High unemployment, increasing crime rates, diminishing tax bases, and population shifts, are causing burdens on the major metropolitan areas in this country. Large numbers of youth, out-of-school and out-of-work, is a national problem in our big cities. It usually represents some degree of dissatisfaction with present educational offerings. The Bureau of Labor Statistics reported in 1975 that more than three and a half million people with no saleable skills were attempting to enter the labor market. Employers at the same time were increasing their demands for better trained entry-level persons with higher degrees of skills.

The problem is particularly acute for minority populations caught in the familiar web of unemployment, underemployment, and lack of training. The rate of unemployment of non-white youth is more than double that of white youth in many cities. With the unemployment rate of out-of-school teenagers in the 16 to 19 year age bracket up near 20 percent in some cities the situation is desperate.

In New York City, for example, more than 30,000 students drop out of public secondary schools each year without graduating. These dropouts are often deficient in saleable skills and generally low in academic achievement. They tend to join the ranks of the unemployed youth. The City's economy has few opportunities for the inexperienced, unskilled, functionally illiterate dropout. In addition, it has been estimated that 35 percent of New York City's adult population is in need of training, retraining and upgrading for gainful employment. As in the case of the high school dropouts, a high percentage of these adults come from those who are disadvantaged. It is essential that New York and other great cities develop alternative strategies to meet the pressing needs for increased numbers of individuals to learn entry-level skills in areas which offer opportunities for employment.

As a result of this situation, a proposal was submitted to the United States Office of Education to research this subject. The purpose of this research was two-fold; first, to develop potential solutions to New York City's needs and second, to develop information and recommendations that might be of value to other large urban cities facing the same problems as New York.

The Comprehensive Occupational Education Research (COER) Project was initiated by New York City to design a comprehensive occupational education system to meet the long range occupational education and training needs of the youth and adults of the City. The planning process and the experiences of the COER staff yielded valuable data and insights about alternative approaches for the delivery of occupational education in the City. At the same time, because the demography and economics of the City are similar to those of other large cities although larger in scale, Project COER provided a number of general ideas and "how to" alternatives of widespread applicability to the urban areas of the nation.

This document, constituting Volume I of the final project report, presents suggested guidelines arising from the COER Project which may, at least in part, be of interest in other metropolitan areas and to their Directors of occupational education. Although not designed specifically as a step-by-step manual for planning

occupational education in a major metropolitan area, it does provide useful basic ideas based on a combination of research evidence and judgement of experienced practitioners. It is recognized, of course, that to varying degrees the ideas and procedures are currently incorporated into the occupational education planning activities of every major city.

A second document, constituting Volume II of the final project report, describes how the procedures were applied in designing a comprehensive occupational education for the Borough of the Bronx in New York City—an urban area more comparable in size to many major cities in the nation than the whole City of New York. That document reflects the input of literally volumes of data, statistics and information gathered as part of one of the most comprehensive studies of urban occupational education in the United States. The bulk of the supporting material and research data has been collected in an associated "Appendix" volume. It is expected that Volume II and the "Appendix" will become part of the ERIC system.

Robert M. Worthington
Chairman
National Panel of Consultants

Chapter I

THE COMPREHENSIVE OCCUPATIONAL EDUCATION RESEARCH (COER) PROJECT

Introduction and Background

During the past decade public education has come under universal criticism, with respect to quality and costs, with the major cities, including New York City, bearing the brunt of severity. As part of the total public education process for the youth of our nation, educators, parents and elected officials are becoming increasingly aware of the importance of a more comprehensive educational exposure for our youth that includes both a knowledgeable career awareness and an occupational involvement as a prelude to entering the world of work and/or continuing their post-secondary education. This was eloquently stated by President Carter in a letter of October, 1976, excerpted in part as follows:

> At a time when unemployment is at an unacceptably high level, when more than two-and-one half million young people graduate from high school without adequate training, the need for a comprehensive system of career and vocational education becomes all the more apparent....
>
> We need to make vocational education an integral, vital part of our nation's educational system.

As far back as the early 1960's President Kennedy stated that American education was producing an "army of educated unemployables"—young adults without any saleable skills. The changing technology of the past fifteen years has resulted in the virtual elimination of jobs requiring non-skilled, menial labor. However, it has been said that industry requires technicians and highly skilled and semi-skilled labor of less than a professional level, for more than half of all industrial employment in the United States.

Parents from all walks of life, who once would have been insulted if counselors even suggested an occupational involvement for their children, are more and more insisting that occupational education be made available. Some educators in the past have considered occupational education as a convenient "dumping ground" for students who had little chance for succeeding in school. These attitudes, fortunately, have changed in recent years. Occupational education is in great demand. Enrollments are growing across the nation. Enrollment in occupational education does not preclude admission to post-secondary education. In many cases occupational education provides motivation for academic success, saleable skills and financial support needed to continue education.

The need for support of occupational education as a normal part of the public education of our youth is apparent. Its availability to all youth is humanistically and constitutionally in keeping with our society's goals.

The economics of occupational education are generally less understood, but not less important, in our modern technological society. An educational system that adequately prepares its youth with the knowledge and skills necessary for career success and a continuing educational curiosity has proven to be an effective ameliorant of the expense and societal humiliation of the democratic dole of welfare. The remediation of problems with crash programs of education and training for the poor, under-educated and unskilled are many times more costly than "doing it right the first time" in our public schools. The emotional, psychological, and societal advantages are immeasurable.

During cyclical periods of national high employment, the entry skills learned in our public schools will enhance youths' employment potential. During periods of high unemployment, the skills they have acquired become a competitive necessity that more often than not means being employed and self-sufficient rather than being unemployed, disenchanted and socially volatile. It was said in ancient times that education had a two-fold purpose; to provide man with skills and knowledge to earn his daily bread and to provide the insight that would make the mouthful sweeter. The development of a comprehensive occupational education system for the City of New York, as a part of the total educational process, philosophically directs itself to these traditional goals.

The dropout rate has become increasingly serious throughout the nation; alarmingly so the major urban areas as New York City where the annual dropout rate of the public high schools is almost ten percent on school registers. Leaving school prematurely and

undereducated is a major cause of social disadvantagement. Entering the world of work both undereducated and unskilled is practically a guarantee of social and economic failure and its resultant costs and consequences.

Recent studies indicate that the attrition rate for students involved in quality programs of occupational education is substantially less throughout the country. While this is also true in New York City, there is still a critical need to expand and improve the quality and comprehensiveness of occupational education as a normal part of the total public education process of the youth and adults. As one illustration of this need, every year 10,000 or more students apply for admission to the City's vocational high schools who cannot be accepted because of facility and space limitations.

A national study of the vocational education programs in cities with populations exceeding 100,000 was conducted by the Ohio State University Center for Vocational Education. The study was designed to: 1) explore perceived needs through personal interviews, an open-ended survey and literature review; 2) determine the relative national priority of these needs by ratings from city directors of vocational education and their staffs; and 3) compare the need priorities in terms of city size, geographic location and minority concentration to determine if different types of cities have unique needs.

Because of their critical importance, the following recommendations were selected from the findings of the study.

1. The current procedures followed for allocating resources to large urban areas should be reassessed. The top priority goal area and many of the highest ranked specific needs concern the funding base for urban vocational education.
2. The basic academic instruction received by vocational students needs to be upgraded. This can be accomplished, in part, through: increasing coordination between vocational and academic curricula and teachers; improving methods for diagnosing students' remedial academic needs, developing curriculum materials in Math and English geared to vocations, and assisting vocational teachers to instruct academically deficient students.
3. The quality and delivery of vocational guidance services to students should be improved. Systematic procedures for counseling vocational students prior to their enrollment to help them select the right program are needed. Programs which help students develop positive work habbits and attitudes should be developed. Well-rounded aptitude and interest testing programs should be initiated.
4. Some priority areas for pre-service and in-service programs, which were identified included: preparation of counselors in vocational guidance; industry based exploratory programs for vocational teachers; coordination between vocational and academic teachers; public information techniques; serving students with special needs; helping teachers instruct academically deficient vocational students; using follow-up information to improve programs; and maintaining current information on career opportunities and job practices.
5. Public information and community involement programs are needed to help vocational educators communicate with their constituents, sponsors, and peers in the education, manpower, and general communities. Programs are needed for increasing: parental awareness of vocational education opportunities as compared to college; federal and state awareness of urban vocational education needs; the use of vocational students as employees by business and industry; middle and high school student's awareness of vocational education opportunities; the general public's awareness of vocational education; and general educators' awareness of vocational education.

The National Panel of Consultants developed a number of viewpoints about occupational education in large cities and offered them to the COER Project staff as guideposts. These viewpoints were articulated in a number of brief statements written by individual members of the Panel. Summaries and excerpts from the panelists' statements appear below.

The Panel believes that the cities offer opportunities for a vast number of persons to be employed in extensive and varied occupational fields. A panelist stated: "The problem is one of skills and technical knowledge necessary to succeed in the jobs that exist. Since the potential manpower is residing in the cities, the solution is to prepare the people to participate in the opportunities. The persons who migrate to cities and remain there often lack the skills necessary for competitive involvement because schools in cities lack the finance and facilities to offer a comprehensive education program."..."Barriers that must be overcome are those that impede equal opportunity for persons to participate in the learning process as well as in the job market. Poor facilities and inadequate resources are equally inhibiting to the establishment of a viable comprehensive system of occupational education."

The Panel regards vocational education as the marketable skill development component of a comprehensive occupational system. One panelist stated: "The immediate future role of vocational education in large cities must be flexible and versatile so that it can meet the demands of a changing society. Vocational education in a large city must provide for: 1) Strong leadership that is required during this critical growth period, 2) An awareness program of the critical issues facing the large cities. The program should be directed toward the leadership of the state and federal educational agencies, 3) A communications network with supporting agencies, public and private, associated with all phases of vocational education, 4) The direct input of critical issues to the teacher education institutions, 5) A closed loop system with the business-industrial-labor communities, and 6) The design, development, and utilization of a system for vocational education planning that involves the appropriate segments of society and supporting agencies."

The National Panel of Consultants concluded that the efficient preparation of persons to meet the demand of the labor market is predicated upon a sound and comprehensive occupational education system. Such a system includes an inventory of what exists in the way of programs, personnel, facilities, and other system components, as well as a thorough exploration of needs. This needs assessment should include data gathering which would identify various need domains—substantive as well as statistical.

In major metropolitan areas particularly there is a need for comprehensive planning and accountability, most especially in terms of cost benefit analyses. Such analyses relate to the cost of producing a finished product, a competently trained and employable student, and cannot take place without: 1) Identifying the components of a comprehensive occupational system and determining who is or should be providing them; 2) Identifying the users's needs; 3) Determining the alternative delivery system; 4) Effecting a sound management system; and 5) Building into the system ongoing evaluation.

In the large urban areas, especially in the inner cities where there is the highest concentration of youth unemployment, there is often a vast scarcity of resources. Here one finds the highest concentration of people who could benefit from occupational education and training, yet too frequently there is no central source of information about programs or coordinated delivery systems. In any given urban area, various agencies and institutions, both public and private, separately provide occupational training often duplicating services and all too frequently overlooking services and people needs that should be addressed. Why then should a school system continue with costly piecemeal program offerings? Certainly a more efficient use of finances, manpower, facilities, and other resources would be to assess, plan, pool, and coordinate the use of all resources—thus effecting a comprehensive and efficient education system.

The concept of a comprehensive occupational education system recognizes the validity of these several views and recommendations and the need to provide expanded educational options in meeting the totality of students' needs. In New York City, the concept of comprehensive occupational education was incorporated into the "Bronx Career Campus" in 1972. This approach was consistent with the recommendations of the New York City Vocational High School Principal's Association as presented in a position paper in 1971 entitled "Vocational Education in the 70's—a Statement and a Projection for New York City" (Attachment B).

Experience of the "Bronx Career Campus," and of similar educational approaches in other metropolitan areas, confirmed the need for a system that would provide for involvement of all of the resources of the community in the educational process. Such involvement would be aimed at insuring flexibility of operations, accessibility of training to students of all ages, and expanded educational options consistent with student and industry needs.

It is likely that most metropolitan areas, like New York City, do not have the facilities or seating capacity to accomodate all those students interested in vocational education. With severe budget restriction, the construction of new facilities, or even the conversion of existing facilities, must be deferred. The problem, then, becomes one of developing alternative forms of vocational education, as a comprehensive occupational education system, that will accomodate student, community, education and business and industry needs.

To make such a system a reality, urban occupational education leaders must focus on specific planning goals and objectives, develop strategies to various publics and establish policies and procedures to achieve success.

Succeeding chapters of this document, based on the results of research on alternative forms of occupational education that could meet the needs of New York City, are offered as assistance to large city Directors of occupational education in planning and implementing comprehensive occupational education systems.

The following section is included to illustrate the scope and needs of occupational education in New York City. This, in essence, is the environment for COER Project studies.

The Occupational Education Delivery System in New York

While this document has been designed to address recommendations and actions that might be considered in the development of a comprehensive occupational education system in a large metropolitan area, its development was based on research conducted in New York City, with specific emphasis on the Borough of the Bronx. This Borough was selected as the "experimental site" since its size, demography and other features seemed more closely related to other metropolitan areas than New York City as a whole. The following information is presented to provide a framework of the particular environment in which the research was conducted. It should be noted, however, that the Project also drew upon the experiences of similar programs in other urban areas of the country, as well as the experience and thinking of a number of prominent consultants representing many years' involvement in urban occupational education.

New York City has a diversified program of vocational education offered in a variety of facilities. To facilitate understanding of the information to follow, it should be noted that vocational education, in this report, refers only to those programs of skills training that are aimed directly at preparing students for employment and/or advanced skills training. Occupational education is used in a more generic sense to include pre-vocational and exploratory programs as well as skills training (vocational education). Industrial Arts programs and most of the Home Economics programs, for example, are classified as occupational education but not as vocational education.

At the secondary level, vocational training in trade areas and in related technical subjects is offered primarily at the seventeen multi-trade and six unit-trade vocational high schools. Vocational training in Health Careers and in Business and Distributive Education is also offered at some of the vocational high schools and at many of the academic and comprehensive high schools. Several of the latter schools also offer vocational training in Home Economics Occupations and in Agricultural Careers. It should be noted that in each of the schools where vocational training is offered, college preparatory work is also included in the students' programs.

The vocational high schools offer more than fifty vocational courses to approximately 45,000 students. The unit-trade vocational high schools specialize in specific occupational areas; for example, the Automotive High School, the New York City School of Printing, the High School of Fashion Industries, the High School of Art and Design, the Aviation High School and the Food and Maritime High School.

Exploratory and pre-vocational programs are offered in all of the vocational high schools and in the sixty academic and sixteen comprehensive schools.

In addition to regular program offerings of the high schools, several alternative programs provide expanded training opportunities for students. These include the Shared Instruction Program where the student attends, on a part-time basis, a second school for vocational training not offered in the student's home school; the After School Occupational Skills Training Program that provides over 6,000 students the opportunity to participate in skills training programs on a voluntary basis; and the Cooperative Education programs. In the latter program, about 5,000 secondary students work and attend school on alternate weeks (or other time periods), and 5,000 hold part-time jobs.

Of the 320,000 students enrolled in grades 9-12 in the City public high schools about 121,000, or 38%, are involved in vocational training programs and an additional 70,000 students participate in exploratory or pre-vocational programs. (Table I) Thus, approximately 60 percent of the high school students participate in occupational education programs and about two-thirds of these in vocational training in preparation for employment.

Sixteen of the City's high schools are located in the Bronx, four of these schools being multi-trade vocational high schools and 12 being academic or comprehensive high schools. Total public seconday school student registers in the Bronx are approximately 57,500, including 7,040 registered in the vocational high schools. An estimated 28,000 Bronx high schools students are involved in some type of occupational education program.

The non-public high schools of the City have registers of about 60,000 with approximately one-third of the students participating in some type of occupational program. The City's total secondary school population of slightly over 380,000 represents an estimated 71 percent of the City's 15-18 age group. Not all but probably a majority of the remaining 29 percent, or about 156,000 youths, are in need of training at the secondary level.

TABLE I

OCCUPATIONAL EDUCATION*
NEW YORK CITY PUBLIC SECONDARY SCHOOLS
1976-77 SCHOOL YEAR

Discipline Area	No. Students Enrolled: Vocational Education	Exploration & Pre-Vocational	Total
Trade and Industrial	26,110	6,610	32,720
Technical	6,950	1,870	8,820
Health	10,050	540	10,590
Business & Office Education	72,600	5,300	77,900
Home Economics	3,570	14,280	17,850
Industrial Arts	—	40,880	40,880
Agriculture	1,950	—	1,950
	121,230	69,480	190,710

* Total secondary school population—380,000 or approximately 71 percent of 15-18 age group

In spite of the extensive vocational program offerings in New York City's high schools, and the large student registers in the programs, more than 10,000 student applicants cannot be admitted to public vocational high schools each year. This is largely the result of limited training facilities. The students who cannot be admitted to vocational high schools are sent to academic and comprehensive high schools. In such situations, the students have limited access to vocational trainig programs, but many students do participate in occupational education through exploratory and pre-vocational programs or through alternative programs for vocational (skills) training.

It is estimated that of the 4,033,000 New York City residents in the age range 19-59, 1,420,000 or about 35 percent need vocational education for employment entry or upgrading. There are a variety of training programs offered to this population: for example, the occupational training programs at the Community Colleges (CUNY); the Fashion Institue of Technology; CETA programs: and the programs offered through the New York City Board of Education (Manpower Training, Pre-employment Programs, Apprenticeship Training, etc.). However, these programs involve only about 76,000 of those in need of training or retraining, or about 5.4 percent. It should be recognized, of course, that there are other adult training programs operating within the city (as in the case of the apprenticeship training programs of the labor unions, the private trade schools, the YMCA and the like) which serve several thousand additional adults.

The information presented above illustrates an "environment of need" within New York City. This includes need for expanded programs of vocational education that will reach increased numbers of those needing training for employment or employment upgrading. This need for vocational education is, of course, compounded by technology changes which have greatly reduced the employment opportunities for untrained individuals and by the current high levels of unemployment. Also, it must be recognized that many of those in need of training for employment are minority and/or disadvantaged persons who, for a host of reasons such as language deficiencies, lack of motivation, etc., are not prepared for employment. In these respects, New York City is likely similar to many or most of the other large urban areas of the country.

In developing an approach to possible solutions to these urban occupational education problems, the results of experiences with alternative systems of occupational education were evaluated. It was concluded that several aspects of prior experiences required in-depth study in order to develop sound bases for planning and implementing a viable comprehensive occupational education system. These needs were translated into objectives of a research proposal submitted to the U. S. Office of Education for funding under Part C of the Vocational Education Amendments. These objectives of the proposal, and of the COER Project, are presented in the following section.

Objectives of the COER Project

1. *Design a master plan for the implementation of a comprehensive occupational system in the City of New York. Develop a prototype which can be field tested in one of the 32 community districts or a similar geographic area at the conclusion of this project.*

   The Master Plan will utilize the systems approach which involves the precise stipulation of objectives, resources, alternatives, decisions, programs of action and evaluation plans and procedures. Among the components of the Master Plan will be transportation patterns, feeder schools, utilization of community organizations, job development and placement, cooperation and coordination with local industry, and close coordination with the State Employment Service. The Master Plan will provide a prototype of a comprehensive occupational education system which could be field tested in one section of a major metropolitan area and then replicated in any other.

2. *Improve coordination and cooperation with business, industry and community organizations.*

   Development of comprehensive occupational education requires the support of community, parents, business and industry, and organized labor. The city-wide advisory council for occupational education and its almost 50 sub-committees will be utilized to promote exchange of information as the research project progresses. It is felt that direct involvement with business, industry, labor community will help students to make an easier transition from school to work.

3. *Identify, evaluate and collect current and projected metropolitan manpower needs and infuse these data into the comprehensive occupational education plan.*

   Current job information will be gathered through the cooperation of business, industry, and government. This information hopefully will determine personnel needs of local industries and predict the needs of emerging industries of the future. The research team will organize data gathered in this manner to project employment trends and to provide the framework for curriculum design.

4. *Determine optimum time frames appropriate for developing various entry level occupational competencies.*

   The amount of time required to prepare for entry level occupational skills varies greatly with occupations with training programs and with many other controllable factors. In the past, vocational education offerings have tended to be offered in rigid time frames often requiring three hours a day for up to three or four years to complete a given occupational program.

5. *Design an administrative structure for guidance counseling, placement and follow-up services for all youth and adults.*

   Guidance counseling, placement and follow-up are essential components in a comprehensive occupational program. All persons should be provided with necessary information to make appropriate career choices and to enter into occupational education in which they have a high degree of interest and can experience a degree of success.

6. *Determine the attitudes toward the proposed delivery system and design a plan to respond to these findings.*

   Support of the community of business, industry and labor is essential to the development of a high quality comprehensive occupational program. In order to develop and continue a strong program of public relations designed to build the support it is necessary first to determine what the existing attitudes toward occupational education are. When attitudes have been determined objectively, an informational program will be developed and implemented to assure the continued support for occupational education.

7. *Determine the personnel needs and competencies that will be required to implement the plan.*

   An open-entry open-exit individulized occupational education system requires a professional staff of high quality and flexibility. An analysis of current staff backgrounds and staffing patterns should be made to determine the specific kind of personnel development training programs needed. Personnel credentialing requirements must be studied, and, if necessary, made flexible enough to permit the hiring of skilled persons from business, industry, and labor to serve as part-time or full-time teachers and administrative personnel.

8. *Develop performance objectives based on the projected manpower needs.*

   Specifying specific performance objectives and designing instructional materials to achieve these objectives is an essential component of a

comprehensive occupational education system. It will be necessary to perform task analyses of various occupations and to identify specific competencies required to enter these occupations. Modular instructional units will be developed and tested based on selected performance objectives in various occupational education areas.

9. *Determine the feasibility of the conversion of an existing facility including a traditional vocational education building, an elementary school or other public building or an industrial building to a Career Development Center.*

   A variety of alternative facilities should be considered if a Career Development Center is to be established in an urban occupational education area. One of the most readily available facilities would be an existing traditional vocational education building. If a traditional facility is to be converted, certain criteria must be adhered to such as location of the facility, areas in which feeder schools are located, the distance to travel required of the target population, proximity to business and industries who may provide work experience programs and possible part-time employment, and costs for renovation or conversion.

10. *Develop a management plan for a pilot magnet Career Development Center.*

    If a new kind of magnet Career Development Center is to be developed and successfully implemented, a management plan must be developed and instituted. The management plan should include all aspects of programming, scheduling, staff development, placement and follow-up. The management plan should use the systems approach to insure total flexibility and systematic decision making.

In effecting a project that would achieve these objectives, methods and procedures were established as outlined in the following section.

COER Project Implementation: Staffing

Subsequent to funding of the Project for "developing a model of a comprehensive occupational education system in New York City," representatives of the Steering Committe and the Research Team designated in the proposal (Attachment C) met to discuss planning strategies for implementation of the project and the selection of a Project Director. Throughout the Project, meetings were held at intervals with the Project Steering Committee and/or the Research Team to review and discuss activities, plans and progress associated with the project.

Criteria for the Project Director were developed and candidates were solicited who had administrative and research backgrounds of training and experience and knowledge of metropolitan school systems, particularly in areas of occupational education and related programs and services. Solicitation of the candidates was effected through wide-spread publication of the position and its associated responsibilities.

Following selection and employment of a Project Director for what was to be designated as the COER Project, basic elements of the research plan for the project were reviewed in defining the desired qualifications of additional staff members. Recognizing that the Project involved two major functions, planning and research, key staff members of the Project were engaged who had backgrounds in these areas as well as experience in occupational education delivery systems. Because of the importance of guidance and counseling to the Project and the the occupational education system under consideration, it was also concluded that certain of the Project Staff should have strong backgrounds in these areas. Finally, to effect the research program and the associated surveys, data collection, etc., it was considered necessary to employ one staff person with a strong background in statistical procedures, computer programming and related skills. The selected staff for the Project, their major areas of responsibilities and the organizational structure for the Project are illustrated diagrammatically in Attachment C.

As provided in the original proposal, a National Panel of Consultants was utilized by the project as resource persons in providing information, direction and external evaluation functions. Members of this panel were selected with great care to provide the services of individuals knowledgeable about the problems of urban occupational education. In each case, the individual was a recognized authority on occupational education. This Panel of Consultants, under the chairmanship of Dr. Robert M. Worthington, (Attachment C) were able to give advice in an objective manner and to see the broad picture of urban occupational education that could conceivably be overlooked by a local research group.

Two major meetings of the the entire panel of consultants were convened in New York City and selected members of the panel were invited on an individual basis to advise on certain aspects of the project.

Dr. Henry M. Brickell and staff of the organization, Policy Studies in Education, were engaged to conduct formative evaluation studies for the Project. Staff of PSE followed all phases of the research study on a continuing basis, meeting regularly with COER Project staff to review plans and progress of work, submitting formal reports of the assessment of the status and progress of the work, and conferring on several occasions during the course of the project with the Chief Investigator, Mr. George R. Quarles.

Staff of the Educational Planning Institute, under the supervision of Ms. Anita Moses, were contracted to conduct a study and macro-assessment of the New York City job markets and a detailed investigation of employment opportunities in the Bronx. Summary information on the results of this extensive work is presented as separate reports in the Appendix volume titled: "New York City Job Market Survey."

Dr. Arthur Wilkins, of Reitter and Wilkins, inc., was engaged to conduct a micro assessment of the electro-mechanical area specifically Business Machine Repair to determine manpower needs and to define entry-level skills requirements. The survey of some 200 companies involved in business machine repair was conducted utilizing the facilities and resources of the Dun and Bradstreet organization.

Finally, Dr. August Gold, formerly Administrator of the Division of Education Facilities Planning for the New York City Board of Education, was engaged to develop a model process for planning facilities for a Career Development Center.

COER Project Implementation: Methods and Procedures

The methodology employed in implementing the COER Project focused on the development of information required to address the several objectives of the project. Basically, this information was related to the various aspects of planning a comprehensive occupational education system and to the development of components of the system; specifically, a career development center, a comprehensive guidance system and a management/student information system.

Initial effort was devoted to the review of literature for related information, e.g., concerning career guidance systems, skills centers, curriculum development, organizational and staffing structures, and the role of advisory councils in occupational education. Literature review was an ongoing effort throughout the life of the project.

Several urban areas outside of New York City were visited in developing information on practices and experiences that could be of benefit to the COER Project. These included visits to skills centers in Philadelphia, Penn., Toledo, Ohio, Cleveland, Ohio, Dallas, Texas as well as certain of the BOCES Centers in New York State. (Attachment D). Other visits were made for the purpose of gaining information on planning processes, organizational structures, staffing patterns, etc. in large urban areas involved in the development and operation of quality occupational education systems.

Concurrent with these activities, research was conducted to develop comprehensive information on the New York City education, community and business environment. It was considered that such information was required in developing the "environment of need" and in documenting information relative to occupational education activities of the City. These "needs assessment" studies focused on demographic data, the location and types of program offerings, student participation in programs and student-based information as to occupational interests, retention rates in schools, employment opportunities etc. The studies related not only to the secondary school populations, but also to out-of-school youth, adults, handicapped populations and populations with limited English-speaking abilities. The intent was to determine the extent to which these various populations were being served and to define the needs for expanded services. Attention was also directed to requirements for guidance, placement and follow-up services

A critical component of the "needs assessment" was the development and implementation of surveys of different populations in determining their interests, needs, attitudes and plans. Such surveys covered secondary school students, students with long-term absentee records, parents, junior high school students and out-of-school youth and adults.

In addition to these formal surveys, information on needs of and attitudes toward occupational education and career development centers was developed through meetings with community, business, labor and education representatives; for example, those involved with the project through the work of the Steering Committee and its sub-committees. In addition, a Bronx Advisory Commission for Occupational Education (Attachment C) was instituted to bring together representatives of business and community organizations of the area to discuss needs and plans related to occupational education and systems for the delivery of occupational education services. As planned, meetings of this Commission subsequently involved representatives of public and pri-

vate secondary schools of the area, as well as representatives of the Bronx Parents' Assocation, the National Alliance of Business, the South Bronx Economic Development Council, and other interested groups.

Based on the outcomes of the above activities, the COER staff developed conclusions as to needs that reflected the current status of occupational education delivery services and changes that appeared to be required to meet the needs. These needs were related to program offering, expanded program options, increased involvement of business and community in educational processes, curriculum, facilities, guidance and counseling, testing, referral and placement services, job development activities and the like.

Based on the conclusions drawn from the Project's research, plans and proposed activities were developed as a means of approaching the surfaced problems. Some of these activities were implemented as a means of obtaining specific information but also as a way of testing the validity of the activity. For example, several approaches were employed in job market studies. These actual field tests proved to be helpful in obtaining more specific information on employment opportunities in specific occupational areas as well as in testing the validity and value of different approaches.

All of the information developed through the Project was viewed in terms of the need for and benefits of a comprehensive occupational system and its components, including a Career Development Center (CDC). To this end, specific and concerted attention was devoted to factors surrounding the development and functions of such a Center. This involved the determination of transportation and travel patterns for students, potential sites for the CDC, selected program offering, scheduling, guidance and counseling functions, interrelations with other educational facilities and programs, involvement of business and community, staff and personnel development, associated information and resource systems, etc. Of prime significance was the development of plans for a "model" facility that would illustrate the interrelation of all aspects of occupational education and their integration into a comprehensive occupational system.

In developing and implementing the Project and the above procedures, an attempt was made to observe elements of a "systems approach to planning" as summarized in Chapter II. It should be noted, however, that certain of the observations and suggestions included in Chapter II grew out of the experiences of the COER Project.

Chapter II

A SYSTEMS APPROACH TO PLANNING

The development of a plan for any system, including a comprehensive occupational system, is an essential function that should command priority attention. It is through the planning process that information is developed in a systematic manner which will permit realistic decisions relative to needs, priorities, objectives and the selection from alternative courses of action. The expected benefits of planning are to insure that resources are: 1) used in ways which have the greatest payoff in maximizing program effectiveness; 2) directed toward comprehensive provision of services with minimum duplication and gaps; 3) distributed to areas of highest need, and 4) used to achieve optimal use of training resources in providing training that relates to job opportunites.

As an over-simplified concept, planning involves the determination of where the system is, where those in positions of responsibility want it to be, and how it is going to get there. It is therefore a systematic means of bridging the gap between the present and the future. It recognizes the inevitability of an uncertain future as well as the need to develop mechanisms for growth that will circumvent the uncertainties of the future. Without a charted course and related alternative courses of action, a system will react to situations and circumstances as they arise. Such unstructured and unplanned actions can be unproductive and uneconomical and, in the long run, detrimental to the populations the system is designed to serve.

Any system will always have limited resources. Therefore, means have to be developed to study those resources; to assess and select from the alternative courses of action that are available; and to establish those priorities of action that will maximize the utilization of resources.

In planning for occupational education, the unavoidable first step is to determine the *needs* of the delivery system itself in relation to the needs of the populations it is designed to serve. In essence this is defining "where the system is." It involves the development of detailed information and the realistic appraisal of all factors relating to the delivery of occupational education services in the preparation of youth and adults for employment or employment upgrading. Specific information needs, as exemplified in the succeeding paragraphs, are preferably incorporated into an information system which, with continuous updating, can be extremely valuable for planning and decision-making purposes. The development of a comprehensive computer-based information system is particularly desirable as it offers a means of rapidly accessing and analyzing stored information.

The needs of the system must take into account those related to the students, the instructional personnel and services, and the organization responsible for the delivery of services. Special needs of categories of students, such as the adults and out-of-school youth, the handicapped, and those with limited English-speaking ability, also must be considered. So also must facilities, equipment and supportive services of all types. In addition, the needs will have to reflect realistic training requirements for students for various types of occupations, and the types and numbers of job openings that will represent employment opportunities for students. Assessment of the employment opportunities will, of course, have to take into accout the effect of changing technologies on existing and emerging industries—both in terms of competencies that students need to develop through training and also in terms of the numbers and types of jobs that will be available to trainees. The development of balances between training output by occupation areas and anticipated job market demands is a difficult process. It is a critical step, however, to insure that students are not being trained for non-existent jobs or conversely, that students are receiving training in areas that can represent future employment opportunities.

The definition of realistic needs must be based on sound information that can only be obtained through extensive investigations. This information will be obtained from a variety of sources, including students, parents, community, busines, industry and the educational system itself. Aside from the interests and needs of these groups, a thorough assessment must be made of the existing occupation educational offerings, their relevance to job market needs, numbers of students involved in various progrms, the performance of students employed in their areas of

training, the number of students who will be entering the job market upon completion of training, and the numbers in need of training or retraining who are not being reached.

After the available information has been gathered, it must be reviewed with relation to what already exists in the delivery system; what should be retained; and what should be developed. This will result in conclusions concerning changes, deletions, and additions that appear to be in order. The totality of needs that are developed must be reviewed and priorities developed. This latter process is difficult but is necessary since, as mentioned earlier, some limitation of resources will invariably prevent all needs being given equal weight with respect to effort and funding.

The development of the priority of needs will often be determined by factors such as the availability of adequate funding, the time frame for the accomplishment of needs, limitations from an organizational standpoint and inability, for various reasons, of the system to accomodate the changes that are indicated.this leads to consideration of: 1) time frames for the accomplishments of needed changes, and 2) the development of sub-plans and alternative plans.

With full recognition of all these factors, the planning must now be directed to the development of *goals* and subordinate *objectives*. A *goal* should be a broad statement of intent or purpose that provides a sense of direction for an indefinite period of time. For a system as complex as an occupational education delivery system of a metropolitan area, a *goal* should not simply be a statement as "To improve the delivery of occupational education services," or "To develop improved occupational education programs." Rather, the *goals* should be addressed to areas as supportive services, curriculum, facilities, remediation programs, staff development and the like.

Each of the *goals* will logically have one or several related *objectives* which should describe a measurable result to be accomplished, or a terminal performance that can be expected, in a given time period. Such performance or behavioral objectives will reflect accomplishments that are requisite to the achievement of a related goal.

The *objectives* are next translated into a series of *activities* which are designed and required for successful achievement of each *objective*. The *activities* should be specific, in sequential order and indicate precisely what is to be done, by whom and when. In this manner, the planning document becomes an action document and one that presents basis for accountability.

In developing activities associated with a given objective, it is usually helpful to develop "time/task" charts that will graphically display the sequence of activities and the time schedules for completion of tasks, presentation of reports, etc. For more sophisticated planning, *PERT* charts may be developed as a means of showing the interrelation and interdependence of actions associated with one or more objectives.

In practice, the *goals* and *objectives* will relate directly to the priority of *needs*. For the short-range, the *objectives* and the related *activities* can and should be precise. For the longer range, it is necessary to provide more latitude relative to time and dependent accomplishments. However, in each succeeding year the longer range activities can be defined more precisely in terms of expected accomplishments in a closely specified time period, e.g., within the next twelve months. Also it is important to develop alternative *activities* and even *objectives* that can take into account changes and circumstances that may represent major deterrents to the implementation of longer range plans.

It is important that the elements of plans be developed with the participation of all groups and individuals involved in the occupational education processes. This applied particularly to the involvement of those key administrators of the educational system who have the ultimate responsibility for approval of the plans and the related implementing actions.

Utilization of Labor Market Information in Planning

Occupational education planning needs to be able to ascertain what is going on in the labor market as well as what is likely to take place. It is of critical importance that the planning takes into account those occupations which will offer the greatest employment potential for those who complete training or retraining programs. It is of equal importance that the planning recognizes which occupations represent limited opportunities.

The problem in occupational education planning is not only how or where to get labor market information, but how to use it. The first obstacle for the educational planner is that the labor market information is voluminous, written in terminology that is often foreign to those involved in educational planning, and is generally not in a form readily useable for planning purposes.

Even a familiarity with formal labor market information that is available does not preclude cautionary use of the data. For example, limitations of the data may seem so severe as to make it of decreased value. The Bureau of Labor Statistics, and local and State Departments of Labor, all produce projections on manpower needs. The projections for demand within

occupational titles are usually outdated by the time they are derived, let alone published. Usually these projections also make some basic assumptions, e.g., that the economy will not change during the projection period. This, of course, further limits the usefulness of the information.

The occupational education planner must be aware of the limits of the data and use it as the base to work from. With this information base, the planner must set up a mechanism for validation of information on a local basis. That mechanism is not usually a mathematical formula but rather, it must depend on the insight and experiences of a large number of people who are familiar with particular sectors of the labor market. This process will yield the information, both formal and informal, that will point out those occupational clusters and courses that will provide the best potential for employment. By combining these with the interests of students and parents as determined by interest surveys, the end result can be useful in defining viable training programs that will meet the needs of students as well as those of employers. In those cases where interest and potential do not mesh, it will point to the need for guidance for students to move them in directions that will have the potential for employment. (See pp. 16-17 for further comments on sources and utilization of labor market information.)

Chapter III

RECOMMENDED ACTION STEPS FOR PLANNING A COMPREHENSIVE OCCUPATIONAL EDUCATION SYSTEM

In developing a document that might be of value to Directors of Occupational Education in other metropolitan areas, the results of the COER Project's activities have been summarized as a series of recommended action steps, presented in the succeeding pages of this Chapter. These recommended actions have been grouped according to major elements that, in the judgement of those involved with the COER Project, should be considered in developing a comprehensive occupational education system.

While the recommended actions are based on the work of the COER Project, and especially on the Project's work in the Borough of the Bronx, they also take into account the experiences and ideas of consultants and others associated with the Project. In this manner an attempt has been made to develop suggestions that will be applicable, in part at least, to any metropolitan area of the country.

A. A COMPREHENSIVE OCCUPATIONAL EDUCATION PLAN FOR A MAJOR METROPOLITAN AREA

Recommended Action Steps

A.1 A plan for a comprehensive occupational education system should be developed that recognizes the planning guidelines of Chapter II, including priorities for implementation.

A.2 Obtain approval by appropriate administrators of the system relative to the plan and its recommended priorities.

A.3 Develop strategies and funding sources for implementation of components of the plan.

A.4 Develop staffing patterns and procedures for continuation of the planning activities, including updating and review of alternatives to reflect changing conditions.

Basis for Recommended Actions

The planning provides an orderly and logical method for the development of information which will permit realistic decisions relative to needs, priorities, objectives and the selection from alternative courses of action. The expected benefits of planning, as pointed out in Chapter II, are to insure that resources are: 1) used in ways which have the greatest payoff in maximizing program effectiveness; 2) directed toward comprehensive provision of services with minimum duplication and gaps; 3) distributed to areas of highest need; and 4) achieve optimal use of training resources in providing training that relates to job opportunities.

Because planning must recognize the certainty of change in the future, the plan must provide for some flexibility to accomodate economic conditions, employment requirements, student interests and the like.

In the planning studies of the COER Project, the primary focus of planning was the development of increased and accessible occupational education options for students. The major obstacle proved to be the development of comprehensive information that could lead to sound decisions as to priority actions. The intimate involvement of representatives of education, business and industry and community proved to be of critical importance in developing the required information and priorities.

B. OCCUPATIONAL EDUCATION AND LABOR MARKET NEEDS

Recommended Action Steps

B.1 An ongoing process should be established for systematic collection, inventoring, analysis and dissemination of job market information from all available sources such as the Bureau of Labor Statistics, the State Department of Labor or any local agency involved in the development of labor market information.

B.2 Job market analysis should include state and national manpower needs as potential expanding areas of employment and geographic mobility.

B 3 Advisory councils, commissions and committees should be involved in advisory and resource capacities relative to manpower needs and employment trends.

B.4 Special surveys of employers should be conducted on a continuing basis in obtaining a direct assessment of job opportunities and employee training requirements.

B.5 Procedures and forms should be developed regarding the start-up of new programs that take into consideration factors of educational value, sociological effectiveness and costs, with a major criterion being that of labor market needs and employment potentials.

B.6 Occupational programs and course objectives and anticipated outcomes should be annually reviewed as to task analysis, cost effectiveness and placement for possible revisions, expansion, curtailment or termination.

B.7 All persons enrolling in programs of occupational education should be informed about the current and long range employment potentials in areas of choice as part of the normal enrollment procedures.

Basis for Recommended Actions

Occupational education is being more universally recognized as a natural part of a comprehensive educational process providing youth and adults with the knowledge and skills for gainful employment and/or continuing education on a post-secondary level. The proliferation of state and federal crash programs of remediation and training of adults and their tremendous costs illustrates the need for and equal availability of programs provided through the public schools of our nation.

The tremendous growth in popularity of occupational education since the enactment of the Vocational Education Act of 1963 and its Amendments mandates the development of standards and formal procedures correlating occupational education program offerings with the manpower needs of our industrialized, technological society. Education and training for obsolescence and non-existent career potentials, whether on the secondary, adult education or collegiate levels, is an unnecessary waste of taxpayers' money rather than a productive investment in the economic stability of the nation.

Occupational analysts, economists, planners, and educators are aware that long range plans and projections on labor market needs are hypotheses of accumulated information and experience that require periodic review and possible changes that relate to facilities, curriculum, personnel, students and total cost effectiveness. The multitude of potential problems and costs inherent in change require that labor market needs be projected on a long range basis with program start-up or termination being considerate of all elements prior to any action.

Programs in the services and trade areas traditionally reflect a job market stability with employment curves changing gradually. This fosters programs of relative longevity with long range employment potentials that have universal applicability.

In determining labor market needs and their relationship to occupational education in New York City, and probably in other large metropolitan areas, job market information generally falls into two basic categories:

Formal—Job market information defined as formal is that information based on data generated by governmental agencies and universities or private firms daily involved in demographic and economic studies and surveys. Monthly, quarterly and annual reports made available through the appropriate bureaus of the Department of Labor were a main source for determining labor market needs. Other examples of publications used in the COER Project included the following:

New York City Annual and Long Range Plans for Occupational Education
Monthly Labor Reviews
Manpower Requirement Reports
State Employment Trends (monthly publications)
Area Manpower Review (monthly publication)
Occupational Outlook Handbook (bi-annual publication)
Occupational Outlook (quarterly publication)

As suggested earlier, the majority of the publications and reports currently are not designed for direct occupational education applicability. For example, State Department of Labor reports are based on extrapolation and interpolation of census and employment information that, in many cases, lead to projections for specific areas that are inconsistent with the actual job market situation. However, in the hands of a knowledgeable and experienced occupational education planner, they provide the bulk of formal information needed for comprehensive job market surveys and analyses. Private firms in the business of providing industry and labor market statistics also provide relatively valuable insight into labor market needs and trends.

Informal—Job market surveys initiated by the occupational education administration, although of a less formal nature, have been found to be comparatively reliable in the planning process. The most natural and available source of information is the local Advisory Council and its sub-committees. Membership of such groups, comprising representatives of industry, labor and professional and lay persons actively involved in community affairs, provides insight into local labor market needs that can be more reliable in the short term than formalized labor statistics.

COER Project studies indicated that a direct survey of employers, either those involved in a given occupational area or those in a prescribed geographic area, resulted in infirmation that was of significant value. One such survey involved direct contact with 100 businesses in the Bronx. Through interviews with employers, information was developed as to the number and types of job openings (current and projected), employment skills required for entry level as well as higher level jobs, and the types of training required for student employment. Another type of job market survey was directed to some 200 companies involved in business machine repair in developing information on required employee skills as well as on current and projected job opeings. COER found that information resulting from a survey of employers provided valuable information as to the job performance of students, their training deficiences and needs for additional or modified training, and the applicability of secondary occupational training programs with respect to the employers' needs.

C. CURRICULUM DEVELOPMENT

Recommended Action Steps

C.1 A centrally located curriculum development unit of occupational education should be established for the purpose of updating the content of existing programs and courses and developing more effective and efficient programs and program models in meeting the changing manpower needs of the city, state, and nation.

C.2 Urban areas should make use of resource materials usually available through curriculum development units in State divisions of vocational education. Major curriculum management centers established by the U. S. Office of Education also provide valuable assistance in curriculum development.

C.3 Particular attention should be given to the development of curriculum materials that allow for maximum flexibility in enrollment of students in occupational programs.

C.5 Specialists in the occupational education curriculum unit should assist teachers and guidance counselors of the system in the development of career concepts and materials for inclusion in programs in the elementary and early secondary grades.

C.4 The modular approach to curriculum should be employed with distinct units of instruction progressing from the simple to the complex. Individualized learning packets and contemporary materials for self-paced learning should be used because they allow the potential of open-entry exit to meet special needs of individual students.

C.6 Bilingual curriculum materials should be developed in such forms that will enhance the ability of students with limited English speaking ability to progress in occupational education programs.

C.7 Curriculum materials should be developed that will assist in the elimination of sex-role stereotyping in occupational training programs.

Basis for Recommended Actions

The primary purpose of occupational education and skills training is to provide in-school youth, out-of-school youth and adults with saleable skills that will lead to gainful employment. In a comprehensive occupational education system, the critical factors in providing this training are: 1) expanded and accessible options for training, and 2) flexibility of operations. Both factors are critical and dependent upon curriculum that will be consistent with the changing needs of industry and with the complex needs of urban students.

In an industrial and technological society that requires more advanced skills of employees, the curriculum which determines what skills are taught and how the skills are acquired by students becomes fundamental to the entire learning process. The development of appropriate curriculum takes on added significance with the recongnition that large numbers of student and adult trainees will, for various reasons, terminate their education/training prior to graduation and/or completion of a full sequence of skills training programs. In view of this situation, there is an inescapable responsibility, on the part of the educational system, to develop curriculum materials and course patterns that will provide the "non-completers" with those skills necessary for some type of entry-level employment.

A great deal of attention has been given to the concepts of occupational clusters and modular curriculum which lend themselves to individualized, open-entry/open-exit instructional programs. As a result, there is wide-spread agreement among occupational educators that modular curriculum has the potential of providing the flexibility within the system to meet the changing and complex needs of industry and of students at all levels, including those involved in adult programs.

Full time involvement in curriculum development, revision and updating is fundamental to the development and maintenance of occupational education programs that will adequately address the future's needs. The available resources and expertise of agencies, institutions, educators, industry, labor and community should be utilized in curriculum development processes in developing materials that are intimately related to manpower needs and to the needs of students being served. The involvement of agencies and individuals should be based upon actual experience and reflect an awareness of the protocol and procedures necessary in developing curriculum materials for a comprehensive occupational system that have the greatest potential of providing quality occupational education programs at minimal costs.

The procedures for curriculum development and implementation in a metropolitan area are substantially more complex than in suburban and rural areas. This is, of course, due to the diversity of industries that are potential employers of the trainees and the size of the population being served. The very complexity and scope of the problems and procedures emphasizes the critical importance and impact of quality curriculum.

The responsibility for decisions relative to curriculum inclusions and exclusions rests with the Director of occupational education in each metropolitan area. This also applies to the selection of curriculum development procedures and formats that will be most effective in relation to the needs of the system and its students.

COER Project research in curriculum development for occupational programs confirmed the value of cluster-based, modular curriculum and individualized instruction. Curriculum-related experiences in New York City, in both secondary and adult programs, and discussions with Directors of occupational education in other metropolitan areas, indicate that modular curriculum can provide the flexibility for a system to meet changing requirements of its students and industry.

D. COORDINATION—INVOLVEMENT, BUSINESS, INDUSTRY, LABOR, THE COMMUNITY

Recommended Action Steps

D.1 Local advisory committees should be formed in each major metropolitan area and composed of members from industry, labor, business, education and the community

D.2 The Director of occupational education should administer and supervise the development of advisory committees and establish workshops dealing with the effective operation and utilization of the recommended advisory structure. Advisory committees should be kept active and functioning as per accepted guidelines.

D.3 Craft committees broadly representative of occupational clusters should be actively involved in program evaluations, curriculum development and updating, equipment changes and job placement in an advisory capacity to the Superintendent through the director of occupational education.

D.4 Annual meeting and visitation days, planned by cluster, should be scheduled with open invitations extended to business, industry, labor, education and the community.

D.5 Industry and labor should be encouraged to include student participation in trade fairs, exhibits and other major events relative to the occupational clusters being taught.

D.6 The various student occupational education clubs should play an active role in the community using their newly-developed skills to assist in constructive community activities of beautification, repair, and such other events that develop leadership qualities and further identify the role of the school and its relationship to the community.

D.7 Standards for annual certificates of appreciation and merit and for awards should be established for formal and public presentation to deserving citizens who contribute to the improvement and quality of occupational education.

Basis for Recommended Action

There is no other area of the educational process that needs the daily support and involved commitment of the business and economic community as does occupational education. Heretofore, in other than isolated instances, the involvement of business, industry, labor and the community has been sporadic with the extent of participation proportional to the extent to which they have been consulted. The relative costs of programs and the terminal, immediate employability nature of occupational eduction demands that the systematic ongoing coordination and articulation of the business community and the the educator be a major priority. Historically, advisory councils and committees have been composed of dedicated, community-minded citizens who have, in the main, been under-involved and whose knowledge and skills have been under-utilized. As the formal advisory arm of occupational education, representing labor, management, and community interests, the advisory council has a key role relative to the successful and smooth transition of occupational education students from school to the world of work with the necessary entry skills. The formal recognition of the volunteer services of business, industry, labor, the community and the students further highlights the importance and advantages of coordinating occupational education and the world of work through education for living.

COER Project focused major attention on the involvement of representatives of business, education, labor and community in research and planning processes. This involved the Project Steering Committee and related sub-committees with representation of all the groups noted above. In addition, an Advisory Committee was established with representatives from all segments of the Bronx, including business, community groups, parents association, public and

private schools and organizations as the National Alliance for Businessmen and the South Bronx Economic Development Council.

These groups were involved in the assessment of needs, in implementing research activities, and in reviewing conclusions and recommendations. With the assistance of these groups, surveys were conducted to determine the interest and attitudes of the various community groups relative to comprehensive occupational education and alternative delivery systems. The results of the surveys, and the views of the several committees and sub-committees, indicated strong support for the development of a Comprehensive Occupational Education system.

There was considerable support for the development of a Career Development Center as component and integral part of the alternative occupational education delivery system.

E. PUBLIC ATTITUDES

Recommended Action Steps

E.1 A survey of attitudes toward occupational eduction should be made of the general public, including business, industry, and community leaders. A scientific survey technique, such as that used by the Gallup Poll, should be used.

E.2 A survey of attitudes toward occupational education should be made of educators, parents and students. Attitudes toward vocational education should be included in such surveys.

E.3 An organized systematic public information effort should be implemented based on the results of the attitude studies.

Basis for Recommended Actions

Based on the experiences of consultants and the results of studies of the COER Project, it is considered essential that all those involved with occupational education (students, parents, business representatives, community leaders, etc.) have a thorough understanding of the purpose and processes associated with the various occupationai education programs. This is necessary in achieving the support required for an effective educatioal system.

A COER survey of over 400 parents of students of Bronx academic and comprehensive high schools indicated that 90 percent of the parents were interested in their children receiving some form of occupational training. Almost 65 percent of the parents said that occupational education would contribute to the student's stature in the community and among his/her peers. While about 50 percent of the parents felt that this training should be received at the academic, comprehensive or vocational high schools, the other 50 percent felt that the training could appropriately be offered through special technical and occupational programs at other facilities; for example, a Career Development Center.

A COER study of Bronx business firms indicated a strong interest in supporting a system that would improve the training of students to meet job requirements of employers. This support related to the traditional secondary school training programs as well as to special types of programs, such as those that might be offered in a Career Development Center. The business and industry representatives further indicated that they were interested and agreeable to employing increased numbers of students in the age group under 21 who were trained for entry-level employment.

F. VOCATIONAL GUIDANCE, COUNSELING, PLACEMENT AND FOLLOW-UP

Recommended Action Steps

F.1 Vocational guidance, counseling and placement services should be made available to all students. It is particularly critical in urban areas that these services will:

a. Identify individual student's needs which can be met by occupational education programs,
b. Provide a vocational assessment program that fosters the development of services to meet the needs of the individual,
c. Provide students with a broad understanding of the world of work upon which to base future career decisions,
d. Assist individuals in choosing and, in learning about current and probable future career opportunities which are appropriate for them, and
e. Provide for referal and placement of students in appropriate training situations.

F.2 A job placement and follow-up system should be installed to coordinate job development, job placement, and follow-up for all occupational areas.
a. An employment profile should be developed for each individual in an occupational training program that will include information on the type and level of skils acquired and occupational areas that offer employment potential for that individual.
b. Follow-up studies should be conducted of school leavers to provide meaningful data for administrators, teachers and students concerning curriculum planning, occupational successes, problems and opportunities.

F.3 Guidance and counseling functions should be supported by a computer-based information system that would have the capability of providing up-to-date information on training opportunities, employment opportunities and remediation programs, as well as programmed information to assist in career-decision-making and program selections.

F.4 Resources of business and industry, civic organizations, labor and community should be involved, as appropriate, in supporting guidance and counseling services.

Basis For Recommended Actions

The mission of a comprehensive occupational education system is to provide a range of learning options to students relative to career exploration, training opportunities and employment, or advanced education. The guidance and counseling components of the system are required to assist individuals in the identification of career interests in the selection of appropriate training programs, and in the development of a broad understanding of the world of work as a basis for future career decisions.

COER studied the requirements of guidance and counseling for a comprehensive occupational education system and a related Career Development Center. Part of the Project's efforts also involved an assessment of those programs of guidance, placement and follow-up that are being used, not only in the Bronx but also in other large metropolitan areas. COER then offered recommendations with particular recognition of the Bronx environment. For example, consideration was given to the types of services that could be provided by community and business groups that would be supportive of guidance, placement and follow-up services. These included the preparation of students for employment and development of mechanisms for placement and follow-up.

COER also assessed the operations and effectiveness of a Bronx Career Counseling and Resource Center which currently services Bronx residents of all ages. These services include assessment of career interests through a computerized information system, testing, referral and placement. Based on needs for such services, as defined by the COER Project study, the Center can be expanded to include a wider range of services. These would include definition of employment opportunities, information on training programs available within the Borough and the City, and expanded guidance and counseling programs.

The results of COER Project studies, relative to required guidance and counseling programs, brought out the need for expanded guidance services, especially at the junior high school and higher levels. Such services should give full attention to the students' needs for counseling relative to career options, availability of career development programs, etc.

The studies further indicated the need for a comprehensive information system to support guidance

and counseling services. Preferably, this would be a computer-based system that would have the capability of providing extensive information, on short notice, to anyone in the system involved in the delivery of guidance services to students.

Finally, the studies emphasized the need for appropriate involvement of business, community, labor and civic organizations as resources for, and possibly direct involvement, in guidance counseling functions.

G. PERSONNEL DEVELOPMENT

Recommended Action Steps

G.1 A comprehensive personnel development program should be designed as an integral part of the impiementation of a comprehensive occupational education approach.

G.2 Personnel development programs should involve experience and training of educators in business and/or community work situations. In the same manner, personnel development programs should be made available to business and community representatives in acquainting them with the operations and practices of the educational system.

G.3 A staff development center should be considered as a means of providing comprehensive personnel development.

Basis For Recommended Actions

The overall goal of a comprehensive occupational system is to provide the most efficient and effective occupational training to its students. In order to achieve that goal the personnel involved in providing that training have to be prepared for the types of operations and activities that will be included in such a system. Personnel training, preferably conducted in cooperation with representatives of business community, should relate to the utilization of all community resources, to the development of understanding relative to the use of newer forms of curriculum, and to the utilization of the latest equipment and technologies in the instructional program. Such staff development activities are particularly important in the initiation of a Career Development Center operation, but it is also considered that continuing staff development programs are required to maximize the effectiveness of such a Center.

The basic philosophy of the comprehensive occupational education system is to provide occupational training that is flexible enough to meet the individual staff needs. One approach is to institute a "staff development center" that would offer the services of specialists, industry, and community representative, etc. in providing in-service staff development programs related to occupational education. Such a "center" would provide such services as:

a. Assessing the learning needs of the total occupational staff (professional and paraprofessional).

b. Developing learning packages to orient all staff to the philosophy, goals, operations and activities of the occupational education system.

c. Providing field experience sites for teacher internships.

d. Developing criteria for a professional curriculum and materials resource center, including demonstration processes and equipment, for occupational staff.

H. ARTICULATION

Recommended Action Steps

H.1 Major metropolitan areas should form a committee, representative of all educational levels and disciplines in the city, for the specific purpose of studying and developing ways to improve the continuous progression of students, with minimum attrition and maximum efficiency, from one level of education to the next.

H.2 A Career Development Center should include career education in-service programs and resources as a service to the teachers of the sending schools in providing elements of career education in the general education process.

H.3 An interdisciplinary committee, representative of elementary and secondary administrators and teachers, should be formed to periodically meet for the purposes of coordinating and improving the quality of occupational education as a part of the comprehensive education process.

H.4 Articulation between secondary and post-secondary institutions involved in vocational and technical education, both public and private, should be directed towards eliminating unnecessary duplication and facilitating the smooth progression of students from the secondary level to post-secondary continuing education at the community college, technical institute and/or private trade and business schools.

H.5 Secondary and post-secondary institutions should study ways in which occupational and technical education facilities, equipment and personnel can be utilized for greater efficiency and economy.

H.6 The articulation and coordination of public adult occupational education programs with government and private agencies involved in adult training programs should help avoid duplication and promote provision of services in keeping with manpower needs. The coordination of Comprehensive Employment and Training Act programs, for example, with the private sector and public occupational education programs could result in substantial savings and additional services.

Basis For Recommended Actions

It has only been in the last few years that the interrelationship of all levels of education has become an issue of concern for educators. The realization that education, particularly occupational education, is not a terminal process but an ongoing one, focused attention on the need for articulation between all educational levels and disciplines. Articulation provides the forum for divergent educational philosophies and institutions to develop a system that will meet the ongoing needs of its students and provide for a smooth transition from one educational level to the next.

No longer is the assumption of "either/or" acceptable or equitable. Too long the position taken by both parent and educator has been that a student was "either" college bound "or" some one to be educationally second class and relegated to a vocational program. Arbitrary and relatively meaningless requirements of entry into post-secondary programs are being discarded by educators with the individual's success potential becoming a major factor in the smooth progression from secondary to post-secondary occupational education. Today, in many parts of the country, occupational education, as a normal and comprehensive extension of the secondary educational process, has provided youth with both the knowledge and saleable skills to choose options at the post-secondary level.

Career awareness in the elementary and early secondary grades, providing youth with the knowledge and understanding of the entire spectrum of the world of work, assists the maturing student in making more intelligent decisions regarding career choices. In addition, information on educational options appropriate for those career choices must be available. This requires an open and candid articulation of education on all levels and in all disciplines.

Active and open discussion of the need for an educational continuum that provides for the smooth transition from each level to the next and recognizes occupational education as another dimension of the educational process. This is already being articulated and will have tremendous bearing on the role of public education for years to come. It mandates the attention of all concerned.

Articulation activities of the COER staff have related primarily to the development of interrelations and collaborative efforts between the educational community and business and industry, community groups and agencies, and representatives of organizations within the Bronx as the Chamber of Commerce, the National Alliance of Businessmen, the South Bronx Economic Development Council and the like. Other related groups of the Center for Career and Occupational Education have been involved in the development of articulation programs between secondary and post-secondary institutions. This articulation has resulted in interfacing of students, staffs and programs in a number of occupational areas. The results of these activities indicate that the development of "bridges" between education and industry and between educational institutions offer significant benefits. The benefits for the students include smoother transition between educational levels and between school and work. For the educational system, potential benefits are economies of operation and increased business and community support.

I. MONITORING AND EVALUATION

Recommended Action Steps

I.1 A plan for a comprehensive occupational educational education system should make provisions for monitoring and evaluation during the implementation phases.

I.2 All programs of occupational education and all related functions should be the object of formalized and objective monitoring and evaluation processes, preferably by individuals or teams of individuals from outside the system, or at least by those not directly involved in the administration of the programs.

I.3 Monitoring and evaluation activities should take cognizance of and be responsive to performance objectivities for each program and function.

I.4 Monitoring activities should be formalized and aimed at determining progress or lack of progress in achieving stated objectives. The activities should take place at intervals throughout the course of the year and may be handled as a formative evaluation process.

I.5 Summative evaluations of programs and functions should be made in a formalized manner at least once each year with the aim of determining the outcomes in relation to defined objectives.

I.6 Monitoring and evaluation reports should flow to a central point (office) and be utilized as primary resource materials for administrative review, decisions and actions.

I.7 Formal instruments should be developed and utilized for both monitoring and evaluation and such instruments should be designed to determine the progress and/or outcomes of specific programs and functions.

I.8 Local advisory councils and related commissions or committees should be involved in monitoring and evaluation processes, in recommending program changes or new programs, and in advising top administration on matters pertaining to the more effective and economic provisions of occupational education services.

Basis For Recommended Actions

Those responsible for the administration and delivery of occupational education services must also accept the responsibility of accountability. This means accountability for the expenditure of funds, for the development and delivery of viable programs, and for the training of students for employment in occupational areas where there are or will be job opportunities. In being responsible for the quality of occupational education services, the Director of occupational education must be held accountable for the results. Undesirable results means that some form of effective and corrective action must be taken; e.g., in instructional procedures, in curriculum changes, in facility and/or equipment changes, in program updating, in staffing changes or reorientation, etc.

The processes for determining that a program or function accomplishes stated objectives are monitoring (formative evaluation) and summative evaluation. In this context formative evaluation and monitoring are used interchangeably as the ongoing assessment of progress being made toward the accomplishment of prescribed objectives. This activity is an effective management tool in that it provides the current information required to keep the program "on course" and to make any changes while there is still time to make the changes. In essence then, this is management by objectives.

Formative evaluation is not only applicable to instructional programs but also to administrative functions, staff development programs, facilities design and construction, and curriculum development. It involves the same processes as are involved in building construction according to developed specifications. In essence, it is prudent and necessary to check during the building process to determine that construction is proceeding according to approved plans.

Summative evaluation involves a terminal assessment of the total accomplishments and outcomes of the program or function. This evaluation should be in terms of the objectives that were scheduled for achievement as a result of the program. Just as a completed building should accurately reflect the specifications and building plans, the evaluation report should show that related plans have been effected. A completed building usually precludes major changes without prohibitive added costs. Likewise, a completed occupational education program that has not fulfilled its objectives can incur significant costs in terms of trainees not being prepared for subsequent programs or for employment. In both the building and the program, the final evaluation will indicate what has been done but any changes at this point will usually have to be deferred to a future program or building.

Not of least importance is the recognition that program evaluations are becoming increasingly important criteria for continued funding. Also, objective evaluations provide an indisputable method of developing information on the effectiveness of programs that can be beneficial in altering public attitudes, in providing bases for program continuation and in supporting funding for such programs.

J. REMEDIATION

Recommended Action Steps

J.1 Formal procedures should be established for early detection of students' deficiencies in basic educational skills which are required for successful completion of occupational programs.

J.2 Programs of remediation should be reviewed and revised to correct deficiencies in reading, writing and mathematics as they relate occupational programs, utilizing curriculum specialists from both general and occupational education.

J.3 Occupational education curriculum materials should be reviewed and revised as necessary to support remediation programs and provide motivation for students' improvements in basic educational skills.

J.4 The purchase and/or development of individualized learning packets and other materials and equipment should be considered as remediation and reinforcement items in support of teachers serving students with educational deficiencies.

J.5 Programs of adult basic education and high school equivalency should be provided for out-of-school youth and adult populations requiring such remediation for successful involvement and completion of occupational education programs.

Basis For Recommended Action

Although more and more students who are performing satisfactorily in academic subjects are choosing occupational courses, there is still a substantial number of students who need some remediation and supportive services. To assume that learning a skill is in itself sufficient education and training to succeed in a chosen occupational area does not take into consideration the constantly changing technology which requires that a person entering the field with entry skills must have a sufficient grasp of general education to stay abreast of these changes. Too often the result has been a dead end position with a limited chance for long range employment success.

Attempts to correct academic shortcomings have proven more effective when the subject matter is related to the occupational cluster in which the student is involved. For example; English, when provided with content related to the skills area in which the student is involved, is both needed and more palatable to the student. The math needed in modern day auto mechanics is extensive and when provided in the context of that need, the math reflects the student's need as well as the needs of the industry for which he is being prepared. The development of such creative curriculum materials is a unique and challenging task that involves interdisciplinary cooperation.

Studies of the COER Project indicate that a comprehensive occupational education system of any metropolitan, urban area must comprise elements of remediation that will be available to students in need of such services. It is not anticipated that this situation will change in the foreseeable future and that a sizeable percentage of the student body will require remediation services in completing occupational programs and in performing satisfactorily in work situations.

Urban areas, as New York City, invariably comprise a large out-of-school youth and adult population that is unemployed or under employed and in need of occupational training that will prepare them for gainful employment or employment upgrading. Unfortunately, many of those in need of such training do not have the basic skills that will enable them to effectively participate in the training programs. Remediation programs should be made accessible for these individuals and these programs should be integrated with skills training programs in a training continuum.

K. HANDICAPPED AND BILINGUAL

Recommended Action Steps

K.1 Programs of occupational education should be provided for handicapped students in occupational areas that show a reasonable expectation of employment for the handicapped.

K.2 Facilities and equipment planning should include those dimensions of safety and mobility as required in programs that include the handicapped students.

K.3 Local industry should be surveyed to more specifically determine which industries are employing or can employ the handicapped. Such surveys should determine the relationship of the skills required and the employment possibilities of students with various handicaps.

K.4 Bilingual programs, utilizing bilingual materials and instruction, should be developed in occupational programs to facilitate the students' mastery of English language as well as occupational skills.

K.5 Guidance and counseling services should be effected to meet the unique problems and needs of the handicapped students and those with limited English speaking ability. Placement and follow-up services should be instituted as part of the support for these populations.

Basis For Recommended Actions

Urban areas of the nation invariably have large numbers of individuals with limited English-speaking ability or handicapping conditions that prevent their effective participation in occupational education programs. At the same time, occupational training for many of these individuals may represent the means of achieving employment and a productive role in society.

The problems of the special needs of the handicapped and bilingual populations are of a magnitude in urban areas as to have a significant impact on social order and the health of the economic community. These problems are often the result of an initial lack of awareness or even concern on the part of responsible officials. The inherent philosophy of meeting special needs problems should be one of remediation and amelioration.

In light of studies of the COER Project, the comprehensive occupational education system must include facilities and programs that will accommodate the special needs and problems associated with the handicapped and bilingual students. These needs require special supportive services and programs that are designed especially for these populations. Where possible, students should be "mainstreamed" into the regular programs. This process should be considered particularly for those students who have the demonstrated capability of handling program and training requirements. An associated requirement is that the instructional staff have the necessary preparation for working with the "mainstreamed" students in the regular programs of training.

L. PLANNING ALTERNATIVE FACILITIES FOR COMPREHENSIVE OCCUPATIONAL EDUCATION: A CAREER DEVELOPMENT CENTER

Recommended Action Steps

L.1 Conduct a needs assessment to determine if alternative facilities, specifically a Career Development Center, is needed.

.1.1 Evaluate the capabilities of existing resources and facilities relative to current and anticipated needs.

.1.2 Analyze the potential benefits of a Career Development Center to the educational system.

L.2 Assuming that the need for a Career Development Center has been established, conduct a feasibility study to determine the availability* and cost/effectiveness of alternatives, including:

a. A new facility,
b. Conversion of an existing public facility as a school building,
c. Conversion of an existing business or industrial facility.

L.3 Develop recommendations for specific facilities and locations with recognition of:

a. Space requirements (square footage),
b. Load bearing requirements,
c. Power and utilities requirements,
d. Location with convenient access to public transportation,
e. Time required for construction or conversion, and
f. Availability of financial resources.

L.4 Develop facility design(s) that will recognize the following:

L.4.1 A magnet Career Development Center should be designed, developed and tested as part of a comprehensive occupational education system with the primary purpose of providing training experiences to produce employability skills for entry-level or upgraded employment, and to provide the background and motivation for further education and training.

L.4.2 The Center should be designed to provide 18 hour/day services for in-school youth, adults and handicapped and bi-lingual students.

*A cooperative system should be developed with appropriate offices of city management whereby planning staff can be apprised of the availability of publically-owned facilities that may be suitable for providing occupational education programs.

L.4.3 The Center should be designed to include the personnel, equipment and space to provide the following quality services:

a. Occupational exploration and entry-level and upgraded skills training,
b. Career and occupational education information,
c. Career and occupational counseling and guidance, and
d. Job placement and follow-up services.

L.4.4 The need for flexibility in the internal structural design, for example, using movable dividers rather than permanent partitions, for efficient and economical program changes.

L.4.5 Structural features, as described by law, to aid the handicapped.

L.4.6 Defined needs for occupational programs that:

a. Are not available or feasible to all students in facilities of the geographic area,
b. Require more sophisticated and expensive equipment and materials,
c. Are advanced courses and programs beyond those provided in other educational facilities,
d. Have good employment potential but cannot be provided in home (secondary) schools due to limited student interest in any one school.

L.5 The Career Development Center should be planned to take full advantage of the resources of business and industry, including work and training experiences in the facilities of businesses, civic organizations, health agencies and the like.

L.6 New concepts, programs and courses in occupational education should be planned for implementation as experimental and pilot programs at the Center for systematic monitoring, evaluation and assessment prior to consideration for replication at other Centers and/or educational facilities of the area.

Basis For Recommended Actions

The actions recommended for consideration are based on the work of the COER Project in developing plans for a Career Development Center in the Bronx. In general, these investigations followed the format of the planning process as outlined in an earlier section (see p. 11 to p. 13, Chapter I). In addition, the recommendations reflected the experiences of consultants associated with the COER Project as well as experiences of Directors of Occupational Education who have been involved in establishing Skills Centers in other urban centers of the country.

Basically, the recommended actions are predicated on establishing the need for skills centers (Career Development Centers) to support the occupational education programs of an urban area; on defining the type of facility that may be needed and available; and on specifying structural and special features that will support the purpose of the Centers.

In establishing the need and planning for a Career Development (Skills) Center, consideration should be given to the development of a unique and identifiable facility. It should have the distinct characteristics which will permit it to be responsive to the needs of the students, the educational system and the employing community.

A Career Development Center should be the result of comprehensive planning for a facility and system that will provide expanded occupational training options for students and one in which the "shared services" concept can be put into practice and carefully monitored and evaluated. In this respect, the facility should provide for the training of students whose interests cannot be met within the scope of the organization and programs of existing facilities. For the secondary students, this provides a mechanism whereby the desired occupational education training can be obtained at the Center while the student is registered in another school for the normal academic programs. For the out-of-school youth and adults, the Center can represent an accessible and well-equipped facility for training or retraining.

As an example of the planning processes that may be used in developing a Career Development Center, Chapter IV is included to illustrate the steps that may be involved. This example of a methodical approach to facilities planning was developed by Dr. August Gold, formerly Administrator of the Division of Educational Facilities Planning of the New York City Board of Education.

The information presented in Chapter IV, while serving as a basis for the definition of recommended action steps, is intended as an exemplary process and does not represent final decisions as to a facility design for a Career Development Center in New York City. Likewise, the plans for specific training programs and related functions are presented for illustrative purposes.

CHAPTER IV

PLANNING A CAREER DEVELOPMENT CENTER FACILITY

This chapter deals with the process of determining the nature of the physical facility which will be needed for a Career Development Center. The discussion and comments will be addressed to questions such as: What kind of structure will be needed? How large should it be? How should it be laid out? Where should it be located? Should a new building be constructed, or can an existing facility be used? What type of process is employed in answering these types of questions?

The development of solutions to the facility-related questions must focus on the purpose that is implicit in the very concept of the "building." That is, the form of the facility must evolve from the goals that are to be achieved through the use of the facility. The planning process must insure the orderly progression from established goals to the final form of the facility.

Assuming that studies will have been conducted to define the need and functions of a Career Development Center, as suggested in the recommended activities of Chapter III, it is likely that criteria and goals of a Center's operations will have been defined. Most of these will impact on the design of the facility; for example, in developing the capability for rapid programmatic adjustments to meet the needs of the labor market, in utilizing the facility for modular training programs, etc.

In pursuing such goals and criteria in planning a Career Development Center in New York City, it has been assumed that the Center will represent a separate organization and facility that will be attended part-time by those students who opt for it, as part of or as a supplement to the curriculum of the regular high school in which they are enrolled. No prior commitment to a vocational education program would be required for attendance at the Center. Credits and graduation would be attained through the regular high school.

While the succeeding sections deal primarily with secondary school students, it is also recognized that a Career Development Center (as planned for New York City) will also accommodate programs for out-of-school youths and adults. In its initial operations, the Center would provide for programs for the latter students both before and after the regular day high school hours as illustrated in Table II.

In the New York City situation, it is projected that training courses in several different occupational areas will be offered at the Center in order to take advantage of economies in space, administration and overhead. In the model being used for a Center in the Borough of the Bronx, clusters of courses are premised initially in Medical Assisting, Electronic and Electrical Appliance Repair, Building Construction and Maintenance and Business/Secretarial functions. As noted earlier, it is an axiom of the Center's organization that particular courses within a cluster, or whole clusters, may be changed rapidly as a result of shifts in the local job market.

The above considerations and the factors noted below broadly determine certain characteristics of the Career Development Center:

1. It must be located so that it is accessible to the regular high schools whose students it will serve;
2. The layout of shops and allied facilities must be capable of easy physical change to facilitate training shifts from one occupation to another in response to evolving labor market requirements;
3. The Center does not require complexes of academic classrooms or the large-space auditoria, cafeterias, and gymnasia of the full-time regular high school; and
4. The various occupational courses offered at the Center should share facilities where possible to avoid the waste of underuse.

In order to lay a basis for developing appropriate facilities specifications, it is necessary to identify more specific objectives and patterns of organization. Generalizations are not enough, and may even be confusing to the facilities' designer. In the first place, certain items of scope must be established. These include quantitative decisions on the following:

1. The number of different occupations for which training will be offered;
2. The specific occupations which will be included when the center initially opens;
3. The number and length of sessions each day;

TABLE II

Proposed Organization — Bronx Career Development Center

Schedule for Day Session*

Two sessions:	Morning — 8:45 - 12:30	
	Afternoon — 12:45 - 4:30	
Periods:	5 per session	
	each period - 45 minutes	

Registration

Each session:	Power mechanics	5 classes	125 students
	Building trades	5 classes	125 students
	Electric/electronic appliances	5 classes	125 students
	Business	5 classes	125 students
	Medical assisting	5 classes	125 students
	Total per session	25 classes	625 students
	Total in school	50 classes	1250 students

* This is presented as an example of scheduling for two of five sessions that the center would be operating. These two were used because they correspond with the high school schedules, their students being the primary target population. In addition, there would be three other sessions to accommodate the out-of-school youth and adult populations.

Early morning	6:00 - 8:30 A.M.
Late afternoon	4:45 - 8:30 P.M.
Evening	8:45 - 11:30

4. The number of students to be enrolled per occupation and per session.

Table II illustrates the type of organization envisioned for a Bronx Career Development Center.

Having established a quantitative framework, we move next to the determination of what kinds of spaces that will be needed in the center. As previously noted, the space specifications should be a function of the training goals. In order to derive specifications, it is necessary first to set down the goals of each program of the center. Each goal should have associated normative behavioral activities which putatively would be conducive to the attainment of the desired goals. From this model there should follow a list of physical conditions, relationships, and constraints which may be expected to optimize the anticipated behaviors and thus facilitate the achievement of the goals. (An example of related goals, behaviors, and facilities requirements for a Medical Assisting program is shown in Table III.)

The general goal of effective, quick, and relevant occupational training, it has been pointed out, is not sufficient for the synthesis of facilities specifications. To be useful in the process of deriving the space needs, the goals must be broken down, for each particular occupational training program, in terms that are specific, identifiable, definable, describable, visible, communicable, measurable and implementable. "When educational objectives are stated in operational and detailed form, it is possible...to determine, with some precision, which learning experiences are likely to be of value in promoting the development of the objective, and which are likely to be of little or no value." (Krathwohl, Bloom, and Masia, *Taxonomy of Educational Objectives.*) With these guidelines, it becomes possible to infer the implementing behavioral activities to be anticipated.

If, for instance, in stating the goal for a course in Medical Assisting, we were to leave it at the level of "preparing the student to perform efficiently as an assistant in a medical office," we would be contributing little to space design. The architect would know that he was expected to produce a medical layout of some kind, but would have no direction beyond that. By decomposing the goals into subsets, such as "efficient conduct of examination procedures," we open the way to stipulating some behavioral activities which should be of value in pro-

moting the attainment of the goal. Among the activities would be listed:

1. Practice in setting up for complete physical examination;
2. Performance of aseptic procedures preliminary to examination; and
3. Measuring height and weight and the like.

The facilities requirements can now be derived from the expected activities. It follows that if a student is to practice setting up for a physical examination, there will have to be a patient examining room in which to practice. And to perform the incidental procedures, this room should be equipped with an examining table, dressing alcove, sink, sterilizer, scales and supply cabinet.

The most efficient way to develop and display the components of a requirement derivation process is in three-column parallel listing, with the related "Goals," "Behavioral Activities," and "Facilities Requirements" as illustrated in Table III. Similar requirements derivations should be worked out for each of the courses which are to be offered in the career center.

Eighty-three separate requirements were derived for the Medical Assisting course, many of them multiply repeated in respect to different objectives and different activities, and all having interacting relations with each other. There are available computer programs to sort these out into subsets and then group them into form relationships. However, entirely adequate and pertinent space-designing can

TABLE III

Determining the Physical Requirements Necessary to Facilitate the Behaviors Required to Achieve the Learning Objectives

Excerpts from the Example — Medical Assisting*

Objectives	Behavioral Activities	Facilities Requirements
Knowledge of the health care industry	Listening to the teacher, a visiting speaker or a fellow-student	An area in which a group of 25 students can sit comfortably, and hear and see a speaker or each other clearly, without interference from or to another group
Knowledge of career opportunities in the health care industry	Participation in a recitation period in which the teacher asks questions and the students respond	Each student, and the teacher or speaker should be able to see all the others frontally, and be seen frontally
Knowledge of the duties and qualifications of a medical assistant, and of the conditions of work	Teacher-led review of answers to questions previously assigned to be worked out at home	Each student should be able to pass to and from his/her seat without physically disturbing others
Understanding of the psychology of interpersonal relations.....	Oral repetition of material by a student, his peers, or the teacher	The temperature of the learning area should be capable of maintenance at a comfortable level year-round
	Written repetition of material, copied from original, or as test response	Should have available smooth writing surfaces...
	Observation of material displayed for simultaneous reception by the entire group	

*A full discussion of this can be found in the appendix volume

be implemented by the conceptual process which follows.

The items in the behavior activities column of the requirements derivation chart can be synthesized into groupings on the basis of learning method affinity. For example, in the model for Medical Assisting all those conceptualization activities which are performed in groups (e.g., discussion, lecture, games, film presentation viewing) are subsumed under "group learning;" those which involve independent activity are placed under "individual inquiry;" and the various patient-related medical procedures, medical business routines, and laboratory functions are grouped under their respective "practical experience" headings. An inspection of the foregoing activities groupings leads to the conclusion that five general types of space will be needed:

1. Group area: classroom, lecture hall, video room
2. Inquiry area: media center and small conference rooms
3. Medical area: waiting, consultation, examining, X-ray, therapy, testing, sterilizing, drug storage and reception rooms

TABLE IV

Medical Assisting Curriculum

	Periods per wk
A. Group learning (conceptual)	
class discussion and lecture	3
game and role-playing	1
audio-visual	1
B. Individual inquiry (conceptual)	5
media center	
conference rooms	
C. Practical experience (medical practices)	5
therapy	
waiting room	
consultation room	
examining room	
testing	
sterilizing	
chemical and drug storage	
sample reception	
lavatory	
X-ray administration and developing	
D. Practical experience (business routines)	5
appointments	
records	
filing	
forms	
billing	
mailing	
telephone	
banking records	
ordering	
inventory	
storage	
E. Practical experience (laboratory)	5
analyses	
physiology	
chemistry	
pharmacology	

4. Business area: secretarial and financial procedures
5. Laboratory area: analyses and research

Having established the kind of spaces that will be needed in the career development center, it is now necessary to become specific as to the size, number, and requirements of the various spaces. The size and quantity of the spaces will be functions of the number of students per class, and the number of periods which are allocated for each learning method. It may be assumed that a class group will approximate 25 students, inasmuch as that is a model ratio in the United States for a single teacher. Then it will be necessary to make curricular decisions as to the number of weekly periods each class should be assigned to each learning method, e.g., class discussion, independent study, laboratory analysis. Knowing the total enrollment in a course, the number of sessions in a day, the size of a typical class, and the time distribution of classes in various learning milieus, it will be possible to determine the number of each general type of space that will be needed.

Each learning method comprises a variety of techniques requiring specialized kinds of space. The practical experience in medical procedures, for instance, involves therapy, X-ray, examining, sterilizing, care of drugs, and patient interaction. The facilities requirements for learning each procedure have been derived from the set of expected behavioral activities. However, in order to fix data for architectural design, it is necessary to set dimensions for each subspace. The guidelines are to be found in actual practice, in advice from instructors, and from an estimated numerical breakdown of a class into the specific component spaces.

The space decision process can be illustrated by examining two of the learning method groupings to be used in the Medical Assisting program. The course calls for each class of 25 to have two periods a week of group discussion, one lecture period, one role-playing period, and one audio-visual period (Table IV). Now assume that there are to be two daily sessions of five periods each at the career center, and that there will be 125 students enrolled in each session of Medical Assisting. It is further assumed that group discussion and role-playing can be conducted in a typical classroom. If there are five classes in the center each morning and if each class were to use a classroom three periods a week, that room would be occupied 15 of the 25 periods per week in a session. One classroom will then suffice, with space to spare. It is apparent also that a lecture hall and a video facility are also needed, but since these are each only needed five periods a week for Medical Assisting, it is necessary to look to other occupational groups to use them also. (As will be pointed out later, the lecture hall would be an uneconomical installation.)

According to the curriculum, each medical class will be offered one period of practical experience in medical procedures each day. Since there are nine identifiable areas of these procedures, in each of which each student is entitled to practice, we must assume some scheduling of time among them. It would certainly be uneconomical and unreal to have all 25 students in a class at once in an X-ray room which would have to be large enough to hold them all, while eight other similarly inflated spaces stood idle. So we must assume assignments of two or three students each to spaces of life-size proportions, where they practice their medical chores simultaneously under the general supervision of the teacher.

The organization of the center is based on the premise of multiple occupational offerings at one location—five clusters in the case of the Bronx, New York, model being used for the exposition (Table V). A similar requirements derivation process must therefore be employed for each of the other occupational clusters. Then the behavioral activities and the physical requirements must be synthesized into groups, as in the Medical Assisting example, in order to determine what spaces are needed (Table VI) and a similar space-needs list should be prepared for each occupational cluster. After the synthesis is accomplished for all clusters, the space requirements must be compared in order to discover whether there are possibilities of joint use by related clusters, or by all the clusters. A media center, for instance, or a video room, might be called for by the activities in each cluster. It might well be that no single occupation's program would use either of these facilities more than a fraction of the time; and the one installation of each kind could be scheduled to serve everybody who needs it.

Having determined a distribution of spaces by type and quantity, the next step must be to check the viability of these specifications, by constructing a model schedule. Will there be sufficient spaces of each variety to house all the students for each type of learning, without conflict in the use of rooms? On the other hand, will all the spaces provided be used almost all the time, or will there be investment in unused space? Only a trial schedule, based on curriculum and registers, will answer these questions. If there are several allied occupations to be included within a single center, schedules for these should take account of joint-use of certain spaces. (Sched-

TABLE V

Weekly Programs

Mechanical Trades Subject	**Power Mechanics**	**Electric/ Electronic**	**Building**
Shop	15 periods	15 periods	15 periods
Lab science	2	2	1
Tool shop	2	1	2
Blueprint reading	1	1	2
Audio-visual	1	1	1
Class discussion	2	2	2
Independent study	2	2	2
Computer Lab-Info systems	—	1	—
	25	25	25

Medical Assisting	
Medical office practice	5 periods
Bio/chem lab	5
Business routines	5
Independent study	5
Class discussion	3
Audio-visual	1
Games and role-playing	1
	25

Business Practice and Procedures 25 periods

ules for power mechanics, appliance repair, and house maintenance courses in a single center, as shown in Table VII, indicate interlocking use of a common power-tool shop.)

Certain constraints, such as required double or triple consecutive periods, student load limitations in a particular area, and daily limits on learning method types for any one class have to be taken into consideration in developing schedules. These constraints may produce assignment conflicts and operate to prevent maximal use of all spaces, with the result that more square footage may have to be added. On the other hand, a trial schedule may reveal that a space which was called for in the process of requirements derivation cannot be used economically. For instance, in developing the model for the five-occupation center, which appears in the Appendix, it was found that there could be no adequate use of the stipulated lecture hall, inasmuch as the schedule allocated only one class in an occupation per period to that learning modality. If the lecture were to be given to one class at a time, an available 700 square foot classroom could be used, and a 2000 square foot lecture hall, with its auxiliary facilities, could be eliminated from the plans. It can be seen that a trial class assignment schedule is essential to the planning process.

As described in this report, the Career Development Center (CDC) is the occupational training focus of the Comprehensive Occupational Education System (COES), which encompasses occupational information, curriculum development, staff training, guidance, and coordination with the community. Each of these support functions also requires a physical base in which to house its staff and its particular equipment and communications media. In building these support spaces into the first COES/CDC facility, it would be prudent to envisage additional career development centers in the future, and therefore to plan office space of somewhat greater footage than immediately needed to allow for administrative expansion. The space stipulated in the specifications which follow reflect such foresight. The specified administrative complex also includes a media center and an audio-visual (or video) room, to be used by students and staff from all courses and clusters. In addition, there are spaces specific to a building, including a general office, a custodial office, toilets, circulation space, and mechanical systems.

TABLE VI

Spaces Needed for Medical-Assisting
As Determined by Analysis of the Curriculum

Area	Min. sq. ft. required
1. Classroom	700
*2. Audio-visual area	1000
*3. Media center	3000
*4. Conference space	800
†5. Lecture area	2000 (see note)
6. Game and role-playing area	Classroom
7. Laboratory	1250
8. Therapy room	400
9. Therapy lavatory	50
10. Waiting room	400
11. Business office	1250
12. Supplies storage (instructional purpose)	600
13. Consultation room	250
14. Examining room	125
15. X-ray room	300
16. Lavatory	50
17. Microscopy area	Laboratory
18. Sterilizing area	150
19. Chemical storage	Storage room
20. Drug storage	Storage room
21. Sample reception area	150
22. Testing room	600
23. X-ray developing room	150

* To be used jointly with other occupational training groups.

† As a result of the preparation of class schedules for medical-assistant, as well as for other occupational groups, it was found that only one class in any occupation could be assigned to a lecture area at any one time; therefore, there would be no direct instructional need for such a large area. In the event of a conversion of a school building to a career center, an existing auditorium could of course be used for lectures and meetings. In a new building the media center could be used on occasion.

TABLE VII

Medical-Assisting — Program Schedule

Period	Class	M	T	W	Th	F
	I	Classroom	AV	Classroom	Game (CR)	Classroom
	II	Medical	Medical	Medical	Medical	Medical
1	III	Lab	Lab	Lab	Lab	Lab
	IV	Business	Business	Business	Business	Business
	V	Indiv. Study	I.S.	I.S.	I.S.	I.S.
	I	Medical	Medical	Medical	Medical	Medical
	II	Classroom	AV	Classroom	Game (CR)	Classroom
2	III	Indiv. Study	I.S.	I.S.	I.S.	I.S.
	IV	Lab	Lab	Lab	Lab	Lab
	V	Business	Business	Business	Business	Business
	I	Business	Business	Business	Business	Business
	II	Lab	Lab	Lab	Lab	Lab
3	III	Classroom	AV	Classroom	Game (CR)	Classroom
	IV	Indiv. Study	I.S.	I.S.	I.S.	I.S.
	V	Medical	Medical	Medical	Medical	Medical
	I	Indiv. Study	I.S.	I.S.	I.S.	I.S.
	II	Business	Business	Business	Business	Business
4	III	Medical	Medical	Medical	Medical	Medical
	IV	Classroom	AV	Classroom	Game (CR)	Classroom
	V	Lab	Lab	Lab	Lab	Lab
	I	Lab	Lab	Lab	Lab	Lab
	II	Indiv. Study	I.S.	I.S.	I.S.	I.S.
5	III	Business	Business	Business	Business	Business
	IV	Medical	Medical	Medical	Medical	Medical
	V	Classroom	AV	Classroom	Game (CR)	Classroom

C R —Class Room
I S —Independent Study (Media Center)
A V —Audio Visual
Lab —Physics/Chem. Lab

All the space types, including instructional and administrative, should now be specified in outline form on a combined list, which will be used as a guide for the architect. Below is a space summary for the proposed COES/CDC facility in the Bronx:

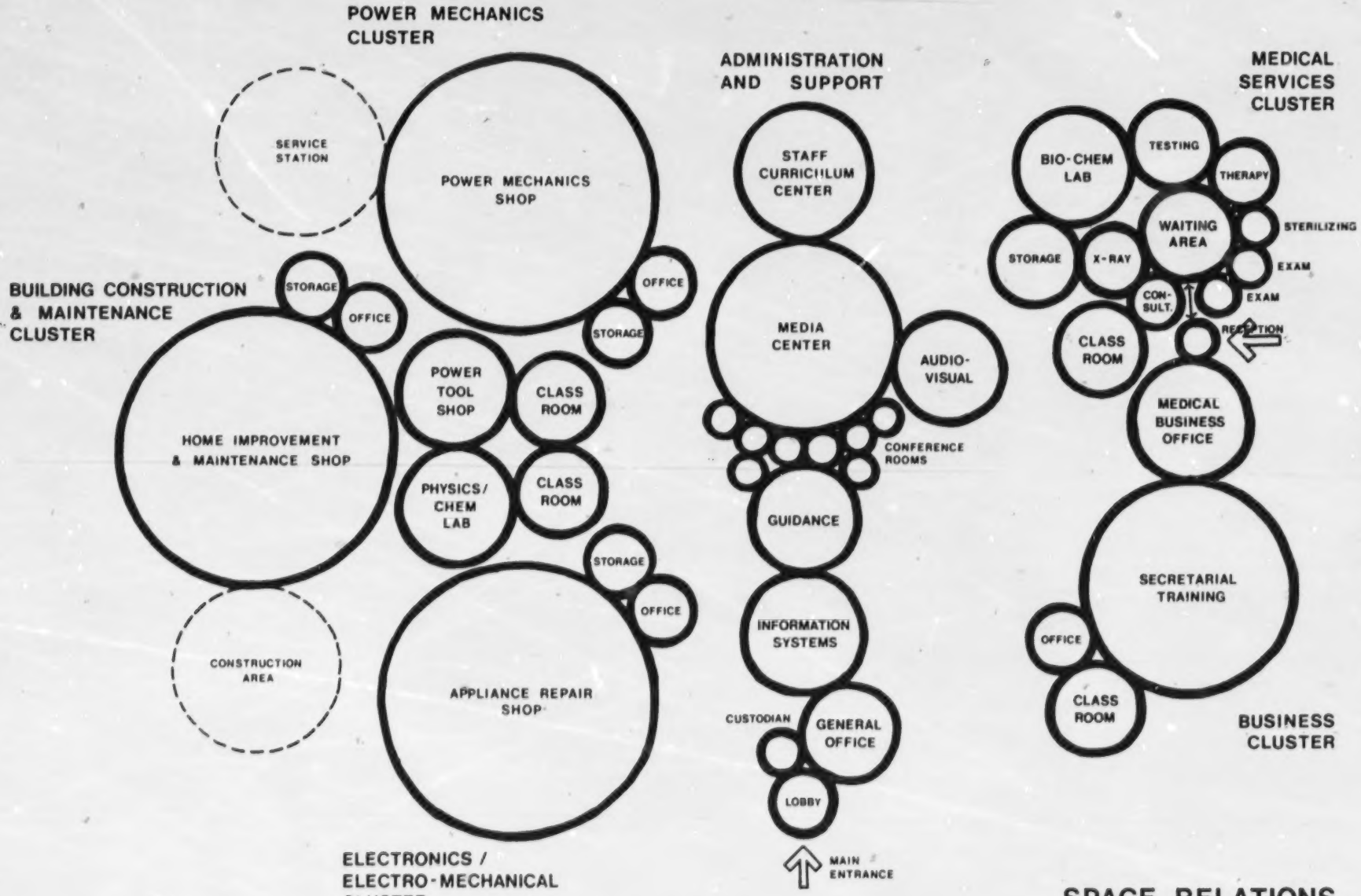
COES/CDC Summary of Spaces

1. **Administrative and Support**	**Sq. Ft.**
1.1 General offices	750
1.1.1 Toilet	50
1.2 Custodian's offices	150
1.2.1 Toilet	50
1.3 Information systems center	1350
1.4 Guidance offices	1000
1.5 Media Center	3000
1.6 Conference rooms (8 @ 100 sq. ft.)	800
1.7 Staff curriculum center and lounge	1500
1.8 Audio-visual center (shop, storage, viewing)	1000
1.9 Toilets—general use (8 @ 200 sq. ft.)	1600
	11350
2. **Business Cluster**	
2.1 Secretarial training lab	4000
2.2 Classroom	750
2.3 Office	400
	5150
3. **Medical Services Cluster**	
3.1 Medical business office lab	1300
3.2 Reception office	150
3.3 Waiting area	400
3.4 Consultation office	250
3.5 Examining rooms (2 @ 140 sq. ft.)	280
3.6 Sterilizing room	150
3.7 Therapy room	400
3.7.1 Therapy toilet	50
3.8 Testing room	600
3.9 Storage room	600
3.10 Bio-chem lab	1250
3.11 X-ray photography	300
3.11.1 X-ray developing	150
3.12 Classroom	700
3.13 Toilets (2 @ 50 sq. ft.)	100
	6680
4. **Power Mechanic Cluster**	
4.1 Power mechanics shop	6500
4.2 Office	400
4.3 Storage room	400
4.4 Service station	outdoor
	7300
5. **Building Construction and Maintenance Cluster**	**Sq. Ft.**
5.1 Home improvement and maintenance shop	6500
5.2 Office	400
5.3 Storage	400
5.4 Construction area	outdoor
	7300
6. **Electronics/Electro-Mechanical Cluster**	
6.1 Appliance repair shop	6500
6.2 Office	400
6.3 Storage	400
	7300
7. **Mechanical Trades Support**	
7.1 Power tool shop	1300
7.2 Physics/chem. lab.	1300
7.3 Classrooms (2 @ 750)	1500
	4100
Total square feet programmed	49,180
Circulation and mechanical systems	10,820
Total square feet	60,000

The next task is to translate requirements from verbal form into design terms. A convenient vehicle is the space relationship diagram (illustrated in Chart I) which employs of proportionate sizes to represent required areas. The circles are positioned so as to show interrelationships among occupational areas, and with the various support areas, such as the media center, and the guidance and administrative offices. In addition, areas for joint use by various occupations are indicated in medial positions.

From the space-relations diagram there emerges a schematic layout of a proposed COES/CDC facility (illustrated in Chart 2). The foregoing process has established definitive needs as well as relationships among requirements. As a result, maximal space efficiency should have been established.

The sample layout has been designed in accordance with the functional roles of the COES components. At the core of the building are the information system, the guidance office, and the staff training and curriculum area which serve as the infrastructure for the occupational education system. They are located conveniently for those coming from outside, as well as in a position easily accessible to the instructional areas in the career center. The media center and the related audio-visual room, both resources for staff research as well as student independent study, fill key roles in the COES, and as a corollary are located at the heart of the facility.



SPACE RELATIONS DIAGRAM

COES / CDC

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On one side, adjoining each other, are the facilities for training in mechanical and building-related occupations. In the middle of this complex, and accessible to all three clusters, are the classrooms, the laboratory, and the power-tool shop which they share on a scheduled basis. Close by are the media center and conference rooms for independent study, as well as the audio-visual area for individual and group recording, listening, and viewing. The curriculum center, the guidance office, and the information bank are also within easy reach for advice and consultation. The medical and business clusters occupy space on the other side of the core, with similar accessibility to the support areas. Their respective classrooms and office-type spaces are close enough to be borrowed for use when extra space is needed.

All the clusters have been laid out on an "open space" plan, so that they can be easily converted to training in other occupations when the need arises. The specified space in each cluster will permit shifts to training for almost any other kind of occupation, merely by removing existing equipment and furniture and replacing them with the paraphernalia of the new occupation. Utility connections are planned so that new equipment need merely be plugged into existing lines. Where space must be partitioned off for simulation of reality, as in Medical Assisting, the open plan is still used for the structure, with interior dividers composed of component panels which reduce sound effectively, and are at the same time capable of easy relocation to create other configurations.

Now the specific facilities listed in the last column of the requirements derivation chart can be introduced to flesh out the design plans. All this data should be set forth in outline shape in a formal statement of "educational specifications," which will include the summary of spaces and their sizes, together with notes on special facilities, relationships, and constraints for each space. The educational specifications will constitute directives to architect and contractor. The potential users at this point have a basis for evaluating their prospective facility.

Obviously, a newly constructed building is the most desirable instrumentality for an ideal center which will incorporate all conceived requirements. Just as obviously, a new building is the most costly way of creating a home for the career center. Everywhere construction costs have been mounting—to a high of $65 per square foot in New York City in 1977. Additionally, in many locations there will be site problems—no cleared space at a location accessible to students coming from a gamut of high schools. And if a site is identified from which buildings must be cleared, legal and judicial delays in eviction proceedings may negate its usefulness.

Because of costs and site problems, it will be most wise to consider housing the center in one or another existing structure which may be converted to meet the proposed educational specifications. Existing buildings are already in place, requiring no demolition, and usually no relocation of tenants; and their conversion will range from 20% to 40% of the cost of a new building, depending on the age of the structure, the distribution of rooms, and the possibilities of adjusting requirements.

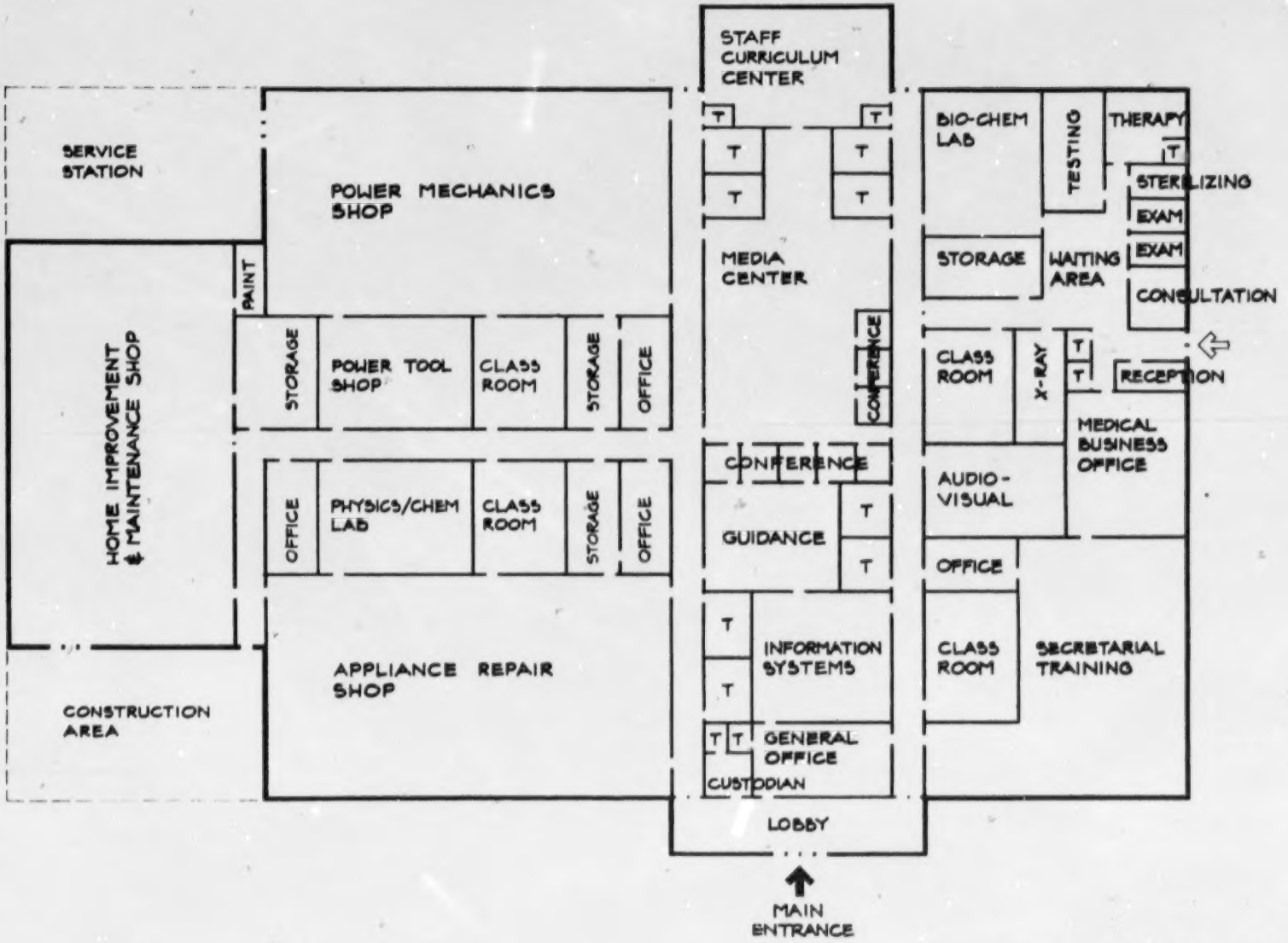
Among possible alternative existing buildings eligible for conversion are:

1. A high school in which the enrollment has declined to a level making its further use uneconomical.
2. A primary school with low register.
3. A factory, office building, warehouse, bowling alley.
4. A portion of an existing operational high school which could be set off from the rest of the building for independent use.

Certain criteria have to be established for choice of a building to be converted:

1. Location accessible to potential users.
2. Adequate space to house the program (about 60,000 sq. ft. in the model for this study).
3. Structural soundness.
4. Limited alterations so that costs will stay well below those of new construction. Care must be taken to select buildings which are not so old that wholesale revisions have to be made to adapt to "new codes."
5. Readiness of the building to lend itself to future physical changes incident to shifts in the occupational courses offered.

The proposed locations of the various major areas of instruction and support should be indicated on the plans for each proposed alternative. The educational specifications developed for the new building should be adapted for each of the conversions. Obviously, not every desired space can be included at the same size and with the same interspace relationships. Buildings with insufficient space, or those in



SCHEMATIC LAYOUT

0 8 16 32 48 64

COES / CDC

which the space relationships are unsatisfactory should be rejected. Schematic layouts indicating physical changes should be prepared for potentially usable buildings, and estimates of cost should be taken off.

In making a final decision as to the preferred means of housing the center, it will be useful to prepare a matrix of criteria for the alternatives as illustrated below. This should compare capital and operating costs, capacity, elapsed time until occupancy, and goal effectiveness of the buildings under consideration. The matrix form vastly facilitates the process of choice by the administrators and the Board members.

Selection Matrix

Method	Capacity	Total Cost	Cost per student	Time until occupancy	Goal effectiveness
Convert existing high school					
Use part of existing h.s.					
Convert primary or junior h.s.					
Convert industrial or commercial building					
Build new building					
Build new wing on existing building					

ATTACHMENTS

ATTACHMENT A

Excerpts from Position Paper No. 11, "Occupational Education, A Statement of Policy and Proposed Action by the Regents of the University of the State of New York," The State Education Department, Albany, New York, 1971.

FOREWORD

"An educational system that is comprehensive and provides full opportunity must assist each individual to sustain himself through productive employment consistent with his abilities and interests. For nearly every person, work or the inability or failure to work, is a prime determinant of standard of living, family relationship, friendships, life style, community service, citizenship, and leisure time. Each individual's occupation is a major factor in his sense of control over his own destiny. In our complex technological, affluent society, this sense of control is remote if not unattainable without economic well-being, and without the knowledge that one is using his own powers to accomplish something of value to himself and others. For these reasons, the education we are developing in New York State must include a strong system of occupational education.

In this paper the Regents state their position on occupational education. The statement includes both short- and long-range guides for the development of occupational education. We urge support of the plan by legislators, the Governor, and all persons in the State concerned for our future environment."

Edward B. Nyquist
President of the University and
Commissioner of Education

POSITION OF THE REGENTS

"To guarantee an adequately prepared work force, and productive employment for all who are able and willing to work, New York State will need to fashion a comprehensive system of occupational education programs and services. Such a system will be comprehensive in that it will serve the occupational education needs of all persons in the State, including persons attending non-public schools, and in that it will utilize all available resources for occupational education, in a coordinated, non-duplicative, and cost-effective manner."

"The system will provide a continuum of occupational education programs and services, beginning in early childhood and extending through all instructional levels, including adult and continuing education. Components of this continuum will be designed to ensure development of student characteristics at approximate key ages; for example:

By age 9, the student understands the concept of work, appreciates the value of work and the worker, and is familiar with a wide variety of kinds and fields of work.

By age 12, the student is familiar with the broad families of occupations, is aware of the prerequisites for employment in the various kinds and fields of work, and understands the ways of progressing from one occupational level to another. He is developing awareness of his own abilities, interests and aptitudes in relation to various occupations.

By age 15, the student is able to assess his own potential and to participate in making informed decisions regarding his immediate educational and occupational goals. His options include access to occupational programs which prepare him for immediate employment upon graduation, for continued occupational education at the post-secondary level, or for exit to the labor market prior to graduation.

By age 18, every student is able to choose and plan the next step in his occupational and educational career. The occupational education student is able to obtain entry-level employment in occupations for which he is trained, and/or to enroll in post-secondary occupational education.

By age 21, and for as long as he is able and willing to work, every individual is employed in a position commensurate with his skill development, and is able to select from continuously accessible preparatory and remedial programs which provide training and retraining for employability, advancement, job security, and mobility, appropriate to his talents, interest, and needs."

Any student will be able to choose an occupational education program with assurance that he is increasing his future options, if:

- there is a strong bond between occupational and academic education, so that students completing occupational programs have sound backgrounds in both occupational and basic educational skills.
- the trend continues toward preparation of secondary students for work in families or broad clusters of occupations, rather than for specific jobs alone.
- the scope of occupational education at the secondary level continues to broaden, so that students with a wide range of interests and abilities are able to obtain preparation for occupations of their choice.
- more programs are specifically designed to prepare secondary occupational education students for continued study at the post-secondary level, and articulation between programs at the two levels increases.
- occupational programs are relevant, in the sense that they prepare students for occupations in which employment opportunities exist or are emerging, and reflect the actual requirements for entering and succeeding in those occupations.
- all students electing occupational programs have reasonable assurance of employment upon completion. This assumption implies that every occupational education agency, including secondary schools, will either act as an employment service in placing its own graduates, or facilitate placement through effective relationships with existing employment services.
- all barriers are eliminated which prevent any persons, such as members of racial minority groups, from enjoying equal opportunity for employment and career advancement.

Since maturing students must have the right to modify educational and occupational decisions, both the occupational education system and the larger educational system of which it is a part must be sufficiently open and flexible to allow changes in direction with a minimum of frustration and penalty. The system must facilitate movement across occupational curriculums, and movement in both directions between occupational and non-occupational curriculums.

The right to modify decisions must include the opportunity for honorable exit from and reentry to the formal educational system without penalty. The system needs to give as much attention to the 'dropout' or 'pushout,' as to the student who completes his education in the traditionally prescribed fashion. While improved educational programs promise to decrease the alarmingly high attrition rates in our secondary and post-secondary schools, alternative educational experiences and services are needed by the student who cannot benefit from continued formal schooling at a particular time in his life. It is the system's responsibility to assist such a student in obtaining employment and/or further training outside the regular school curriculum, and to encourage and facilitate his reentry whenever he is prepared to return."

CONCLUSION

"The major concepts in the Regents policy concerning occupational education are:

- that New York State needs to develop a comprehensive system of occupational education serving all persons in need of occupational preparation through utilization of all available resources, public and private, which offer such preparation;
- that a comprehensive occupational education system will make available to every person a continuum of educational opportunities beginning in early childhood and extending beyond high school for as long as that person needs or desires such opportunities;
- that occupational orientation in the elementary, middle, and early secondary years will provide all students with the basis for informed decisions regarding their occupational and educational plans for the immediate future;
- that occupational education services for adults and out-of-school youth will be expanded and improved through more orderly arrangements which eliminate wasteful competition and duplication of efforts;
- that all occupational education programs will be conducted within the framework of a State and regional planning process, coordinated by the State as part of its overall responsibility for education, and involving all levels of government and all agencies or groups which operate or are affected by occupational programs."

ATTACHMENT B

VOCATIONAL EDUCATION IN THE 70's

A Statement and a Projection for New York City by the Vocational High School Principals Association

1. *Purpose of This Statement*

In this era of crisis and change, it is time to take a fresh look at the role of our vocational high schools in the City of New York. We all agree that boys and girls entering senior high schools in our city should be able to make choices from many types of programs, both vocational and academic. Thus they are entitled to the opportunities and benefits of a comprehensive high school system that is possible in a city of the unique size of New York. One approach, which appears to have been rejected as rigid and impracticable, is to remodel every high school into a predetermined comprehensive high school pattern. A second approach is to maintain and develop a variety of schools—some mainly academic, some mainly vocational—so that our children will have all the advantages of a comprehensive high school system within a more flexible framework. Our purpose is to examine the present and the future of vocational high schools as a vital part of the second plan.

Such an overview, in order to be meaningful, must include three aspects:

A recapitulation of those *current values* which must be preserved.

A search for the *directions* in which our vocational high schools should move so as to provide services commensurate with the needs of our students for today and tomorrow.

The *fundamental requirements* essential to a program of quality vocational education for New York City in the coming decade.

2. *Current Values of Vocational Education*

There is no question but that vocational education should undergo and has been undergoing a process of change. The same is true of all types of education on every level. However, no matter what changes take place, there are certain lasting values which cannot be cast aside:

a. Every youngster entering a vocational high school has at least one *clear goal*—to become proficient in some occupation. While this should by no means be his only goal, it acts as an important motivating force.

b. As a result of having a goal that is attainable within a reasonable length of time, vocational high school students are more likely to *remain in school* and profit from their education.

c. The vocational high schools, as college-entrance statistics indicate, offer a *dual purpose* to students. They can get not only the training required for a skilled job but also those courses preparing them for higher education. Often their occupational proficiency makes it possible for them to earn the funds they need to continue in college.

d. Work in the shops involves *individualized instruction*, to a large extent, and a chance for each student to proceed at his own pace. In addition, students are dealing with concrete tasks and real equipment and materials.

e. *Trade teachers add vitality* to the faculty and to the educational program because they bring to the school and to the classroom the actualities of practical experience in business or industry.

f. Because the vocational high schools draw applicants from wide geographical areas, *students enter these schools by choice*, and not by the chance factor of living in a particular neighborhood. A further feature is the *integration* of young people of different backgrounds from different communities.

g. Our vocational high schools tend to be *smaller and more intimate organizations*, in line with the current concept of optimum size for a secondary school.

h. The vocational high schools are *community schools* in that they maintain a *close liaison with labor and industry* through the Advisory Council for Occupational Education, the various trade commissions, the contacts made by individual schools, and the many cooperative and work-experience programs.

i. *Services* are provided *beyond the regular school day* to out-of-school youth seeking job training, to students from academic schools and parochial schools and to adults in need of new skills or upgraded skills.

j. The record shows that the vocational high schools accomplish their stated goal: *they place their students in jobs*. The resulting benefits accrue to the students, to the nationwide fight against poverty and to the economy as a whole.

k. In these days of student unrest and dissent, the *vocational high schools have been relatively calm and stable*. Like all schools, they have had problems but within a manageable or negotiable range. The chief reason for this phenomenon may well lie in an overused but appropriate word: the *relevance* of the vocational and educational offerings.

3. *Directions for Vocational Education and Our Vocational High Schools*

We believe that the values enunciated here are ample justification for support of the vocational high schools by the community and by those in decision-making positions. However, the worst disservice we could perform would be to stay where we are. Our high school youngsters of the 70's deserve much more.

The fact is that in spite of errors in policy during recent years, our schools have been constantly making changes and trying innovations to increase flexibility of curriculum and to meet the emerging needs of our students. The new vocational courses that have been introduced and the major modifications of existing courses bear witness to our efforts. But the 70's require thinking and planning in new directions that will supply still more individualization, still more flexibility, and more attention to programs adjusting the curriculum to the student instead of fitting the student into the curriculum, while at the same time meeting the changing needs of business and industry.

Our proposals are derived largely from the following references:

The Changing Curriculum and Innovative Programs issued by the high school superintendents in September 1970.

A Proposed Plan for the Reorganization of the Secondary School Program of New York City issued by our association, January 12, 1967.

Ideas expressed or submitted by members of our association and other resource persons.

Innovations already begun in our vocational high schools.

Our awareness of *experiments in progress* elsewhere, the *writings of educational leaders*, the *views of young people* throughout the nation, and the *upheavals in our society*.

With these considerations in mind, we present the elements of a meaningful and viable program for the vocational high schools and vocational education in the City of New York:

a. *Liaison with the community colleges and the senior colleges*, particularly of the City University. There should be better publicity regarding opportunities in the community colleges for our graduates to pursue advanced work in their fields of occupational specialization. For example, cosmetology graduates can learn small business

management and administration as well as college chemistry and more complex practices in cosmetology. Another feature of articulation should be *advanced placement courses* in occupational areas.

Links should also be established with the senior colleges broadening the concept of vocational preparation to encompass *fields that require licensing or training in the college or university*, for example, in law, accounting, foreign language translation, architecture and teaching. This approach is followed to some extent in a few fields now, for instance, in aeronautical engineering and data processing.

A further implementation of effective articulation with the colleges should be the granting of *scholastic credit for vocational and technical courses*. By overlooking the scholastic demands of such courses in English, mathematics and science, institutions of higher education are discriminating unjustly against able graduates of the vocational high schools.

b. *Post-graduate education and training in trade areas.* At present, the main form of this training is a pre-employment program comprising 1200 hours or one year of intensive shop work. This service should be expanded to include a *13th and 14th year* for students beginning their vocational training as juniors and seniors and wishing to gain high occupational competence.

The 13th and 14th years would thus provide further preparation for students who are not yet ready for college or for profitable employment. The work would be on a high school rather than a college level, so that the purposes and functions would be ones neither supplied by nor appropriate to the colleges.

c. *Expansion of academic education and more stress on the general-education values of vocational courses.* More than ever, academic competence and human relations are as indispensable to vocational success as specific occupational skills. The vocational high school principals recognize this truth and are making every effort to enrich curriculum and instruction accordingly.

d. *Utilization of the community as a resource center so as to extend education and curriculum beyond the walls of the school.* For all students but especially for those who will perform more successfuily in a freer environment, we should expand trips to industry, work-study and work-experience programs, placement in part-time jobs for which school credit can be granted, and similar activities.

An important corollary of this program is a closer *working partnership with labor and management*, so that *credit* will be given not only by the school for outside jobs held by students but also by labor and industry *in apprenticeships for qualified vocational high school graduates.*

e. *Individualized screening and guidance for admission to vocational courses.* Screening procedures have become increasingly systematic and refined, but greater emphasis should be placed on counseling and pupil motivation and on special characteristics essential to success in the occupation; for instance, emotional stability in nursing, mathematical aptitude in electrical installation and practice, physical stamina in automotive mechanics, technical English in stenography. Also, since selection procedures will always be imperfect, arrangements have been eased and should be eased further for transfer without penalty from one trade curriculum to another.

However, screening of applicants should be only one part of an overall guidance process in which pupils will be given *greater information and orientation in the lower schools; vestibule programs in reading and mathematics* will be expanded for academically retarded students in the ninth and tenth year; *additional help and resources* will be provided *for students with language handicaps;* and appropriate *training programs* will be developed *for the less-than-skilled student* who has the interest and potential to profit from preparation in an occupational field of his choice.

These are but a few examples of what should be included in an integrated system of *personalized guidance and counseling services* for students on all ability levels who enter the vocational high schools or who seek training in occupational areas.

f. *Flexibility in enrollment procedures and in curriculum;* for example:

1) Qualified students should be *admitted* to vocational programs at the grade or level *where they demonstrate readiness*, as identified by their aspirations, their potential, their goals and their aptitudes.

2) *Enrollment* in vocational courses should be *allowed periodically* throughout the year.

3) Except where time allotments are fixed by state or other licensing requirements, *progress* in vocational courses and successful completion should be *judged by individual competencies.*

4) Vocational curriculums should be varied so as to provide for *one-year, two-year and three-year sequences.* In this way, students could select and complete a sequence commensurate with the time they entered the program and the level and degree of competence desired.

5) For some students, usually at lower or higher levels, a *multi-skill approach, developing skills applicable in a number of fields,* should be tried in place of concentration on a single occupational area. Experiments now in progress should be watched and evaluated and others should be initiated in selected schools.

6) *Dates of completion* of vocational courses should be *flexible* and independent, where feasible, of the academic year. Certificates of accomplishment or other types of recognition should be granted throughout the year depending on individual achievement.

7) *Endorsed certificates of competence should be issued to students meeting standards for employment in the occupation,* in addition to any diploma that is earned. It should be noted that the recommendation for issuance of a uniform high school diploma, along with certificates of competence, was made in the report submitted by our association, January 12, 1967.

g. *Pilot projects and other forms of experimentation designed to provide individualized programs and activities.* Among these would be *seminars,* with *individual projects; non-graded classes; student-exchange programs* in vocational fields; *open programs* for selected students, with shop as the only required subject (with special approval). In the case of an "open program," the remainder of the classes and activities would be arranged, in consultation with the student, to meet his individual wishes and needs.

A few schools should experiment with *"phases" in vocational courses,* as in academic subjects in John Dewey High School, so that after each phase of seven or eight weeks, the student would move on to the next phase if he has demonstrated mastery. Other time divisions should be attempted; e.g., dividing the academic year—*or the entire twelve months of the year*—into three or four parts, that is, into a *trimester* or *quarterly* pattern. Such approaches would leave more freedom for students to proceed at their own pace.

Also, if the Chancellor's proposed budget is approved, one or more vocational high schools should be involved in the program of *individual and independent student study and activity,* to be financed in $100,000 units.

h. *Additional programs in the vocational high schools for the community,* such as: training for adults, where room permits, during the regular school day; short-term and long-term retraining courses, day and night, for out-of-school youth and adults, in cooperation with business and industry and in accordance with individual needs; special programs as needed by industry, the armed services, labor unions and other segments of society; courses for the Manpower Development and Training Program; half-day programs for students from academic and parochial high schools; other skills programs in the manner of BOCES (Bureau of Cooperative Educational Services);

training for the physically handicapped; etc. Many of these programs are in operation now in vocational high schools, but for full service to the community, they should be extended and intensified.

i. *Planned and systematic evaluation and research,* possibly with the help of an agency like the Educational Testing Service for both vocational services in general and such specific objectives as appraisal and improvement of the exploratory program, selection of students for courses, and determination of occupational competence.

4. *Fundamental Requirements for Effective Vocational Education*

The foregoing suggestions are by no means a finished blueprint but rather an indication of what can be done in the vocational high schools to provide flexibility and individualization within a meaningful structure. It would be a serious error to vitiate the sequential training that is necessary to the development of occupational competencies. On the other hand, the possibilities within any sequence must be sufficiently broad, varied and imaginative to meet the individual differences of adolescents in motivation, ability, maturity, purpose and circumstance.

However, no matter how well we plan or work, our endeavors will be hamstrung without the support of higher authority. This support, which is vital to the students entering our schools, must be expressed by the fulfillment of fundamental requirements—requirements necessary to successful vocational education now and in the future:

a. The assignment of an *assistant superintendent* to administer and coordinate vocational education programs throughout the city and to supervise the vocational high schools. The directors of trade and technical subjects and of business education would also work under his supervision.

b. Steps toward the creation of a *central agency* to be responsible for the organization and administration of all vocational programs. Such an agency is essential for various reasons: the breadth and complexity of occupational education; the dispersed labor market; the non-zoned character of the pupil population; the tremendous costs of quality vocational programs; and the need to insure the proper federal and state funding of vocational programs. Further study is needed to work out the specific structure and functions of this central vocational-education agency.

c. *Prompt implementation of recommendations of the Advisory Council for Occupational Education,* based on their continuing study of industrial, business and labor trends, with respect to shifts in employment needs in every occupational area; new training needs and emerging jobs and careers; corresponding changes in courses and curriculum; and minimum standards of equipment and physical facilities for the proper conduct of vocational education programs.

d. The building of a number of *additional vocational high schools* and the modernization of existing vocational high schools. To provide adequate services and facilities for students entering vocational programs at various levels, to maintain single-session organizations and to extend training programs for adults, more vocational high schools are a prime requisite. An increased number of modern multi-trade schools are needed to respond flexibly to newly emerging trades. Additional unit trade schools are needed for coordination and upgrading of established vocational fields, for example, medical arts.

e. *Adequate provisions for quality education in skilled trades,* wherever such courses are offered. These provisions should include:

1) *Shops of suitable area, height and flooring,* with equipment and facilities consistent with industrial standards. These standards necessitate maintenance of facilities and equipment, continuous updating of facilities and equipment and removal of obsolete machinery—through adequate funding, through arrangements for donations of equipment from industry, and through any other practicable means.

2) *A sufficient number of shops* for each vocational course to provide for individual variations and needs.

3) *Licensed and qualified teachers* with a minimum of five years experience in the trade on at least a journeyman's level; also, *licensed and qualified supervisors and administrators.* Furthermore, trade teachers should be enabled and encouraged to keep abreast of new trends and developments in their field through opportunities for continued work experience, by means of sabbatical leaves, training programs held in cooperation with industry, special institutes and workshops, placement in jobs during vacation periods, and other appropriate arrangements.

In planning and carrying out these provisions, it is paramount that vocational education not be confused with industrial arts in regard to chief goals, facilities and personnel. To do so would only weaken immeasurably the standards and effectiveness of both areas.

f. Ample provisions for *funding of vocational education* utilizing all available resources of the federal government, the state and the city. Without sufficient funds, the best conceived plans for vocational education are doomed to failure.

g. Extensive and thoroughgoing liaison, through the central agency, the Assistant Superintendent for Vocational Education and the Advisory Council for Occupational Education, *with agencies outside the school system of New York City;* the Department of Labor, the state Board of Cooperative Educational Services, the trade unions, the American Vocational Association, etc. These contacts should be accompanied by the expansion of job counseling and placement services in the vocational high schools.

h. The *use of all facilities* in the vocational high schools before surrendering vocational programs to other schools or agencies. Examples of these programs—for pre-employment, retraining, and upgrading of skills—have been given (see Part 3, Subdivision h). Where there is room in vocational high schools, it saves money and makes sense to utilize available facilities and to employ personnel known to be trained and qualified.

i. The inclusion of the vocational high schools in *all projects that will be of benefit* to the students. At present, the vocational high schools get no share of funds or personnel for such activities as the College Bound Program, the College Discovery Program and the School to Employment Program, and a highly limited share of other activities such as the Pre-Technical Program. If youngsters in the vocational high schools do not receive the services of these and other projects in fair proportion, they are being short-changed.

5. *Commitment to Vocational High Schools*

Above all, if the vocational high schools are to preserve their present values and move forward so as to serve students effectively in the 70's, we must have a commitment to their status as permanent institutions and to their high priority in the overall plan for secondary education. This commitment must come from the Chancellor and the Board of Education. Then we can meet with officials and community members and join in the formation of coordinating committees to develop and bring into fruition the programs that are agreed upon as desirable. We cannot afford any longer to see vocational education for our students stalled dead-center in New York City while proceeding full steam ahead elsewhere in the state and in the nation.

The vocational high school principals stand ready to participate and to act. Our aim, while it embraces vocational education and the schools that we head, is not confined to these alone. We want to do our part in bringing the best possible education to children in the City of New York.

ATTACHMENT C

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ATTACHMENT D

SUMMARY OF OUT-OF-TOWN VISITS

DATE	SITE(S) VISITED	CONTACT PERSON	COER STAFF MEMBERS CONDUCTING VISIT
7/30/75	Mid-Westchester BOCES Valhalla, New York	Mr. Donald Barbiera	P. Mollo
10/6/75	Nassau B OCES 96A Main Street Hempstead, New York	Mrs. Mary Morris	P. Mollo W. Ross
10/7/75	Yonkers Career Dev. McLean Avenue Center Yonkers, New York	Mr. Dominic Iannicone	P. Mollo W. Ross
10/8/75	JFK Vocational Center Randolph Skills Center Philadelphia, Pa.	Mr. Stanley Cohen	P. Mollo W. Ross
12/17/75	Toledo Skills Center Toledo Board of Education Toledo, Ohio	Mr. Christian Thompson	P. Mollo W. Ross I. Chevat
12/18/75	Aviation Skills Center Cleveland Board of Education Cleveland, Ohio	Mr. Donald Healas	P. Mollo W. Ross I. Chevat
3/24-28/76	Skyline Center Dev. Center Dallas, Texas Houston Technical Inst. Houston, Texas	Mr. Weldon Griffith	P. Mollo
"	San Antonio School Dist. San Antonio, Texas	Mr. Robert Hafernik	P. Mollo
"	Houston Technical Inst. Houston, Texas	Mr. James Adcock	P. Mollo
6/15/76	Randolph Skills Center Philadelphia, Pa.	Mr. Stanley Cohen	P. Mollo I. Chevat J. Adam A. Wilkins L. Bozza W. Ross
6/22/76	Greater Lowell Reg. Vocational-Technical School Lowell, Mass.	Mr. Nelson Burns	P. Mollo

ATTACHMENT E

MAJOR WORKING PAPERS AND SURVEY REPORTS
DEVELOPED AS PART OF THE COER PROJECT*

Job Market	"New York City Job Market Survey" Conducted by The Educational Planning Institute
	Phase I The New York City Job Market Phase II The Bronx Job Market Phase III Survey of Employers in the Bronx
	"Suburban Job Market Survey"
	"The Job Market for Business Machine Repairmen" Survey by Reitter-Wilkens & Associates, Inc.
Interest Surveys	"Tabulation of Responses of the Bronx Surveys:
	High School Student Interest Survey, Junior High School Interest Survey, Long-Term Absentee Survey Parental Interest Survey, and The Bronx Career Counseling and Resource Center Client Survey"
	"An Analysis of Responses to the Bronx Interest Surveys Relative to Survey Question: What Occupational Program Do You Want to Take?"
	"An Analysis of Fourteen Comparable Questions of The Bronx Interest surveys"
Guidance	"Career Guidance Systems: A Review of the Literature"
	"Promising Practices in Guidance: A Series of Descriptions of Guidance Practices Around the Country"
Other	"Skills Centers Within the Context of Vocational Education: A Review of the Literature"
	"Research Design for a Needs Assessment in the Bronx"
	"Programs of Coordination: A Series of Descriptions of Coordination Activities in Various Educational Systems in the United States"
	"Techniques of Choosing Appropriate Statistical Procedures"
	"Implementation and Analysis of Results of Modular Curriculum Field Test"

*These and others may be found in Volume "Appendixes"

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